FEBRUARY '60

MODERN TEXTILES MAGAZINE

Specializing in Man-Made Fibers and Blends since 1925

FIBERS

FABRICS

FINISHES

Intertex's SIDNEY SCHEUER— from Moscow a whale-size order for American textile machines— story page 23

THIS MONTH

Better Dacron carding

Printing on tufted carpets

Durable water-repellent finish

Broadened uses for loom winders

AND 10 MORE TIMELY REPORTS AND USEFUL ARTICLES

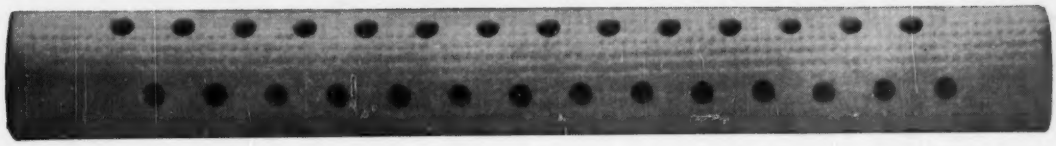
"No Finer Combination"

DRAPER CORPORATION

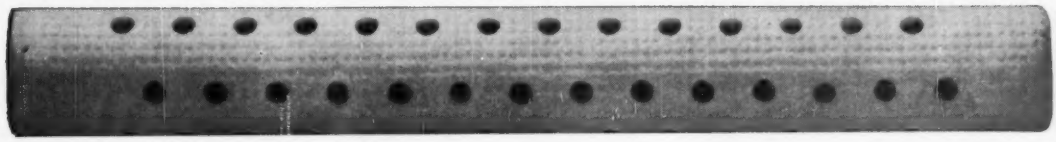
HOPEDALE, MASS.

ATLANTA, GA. • GREENSBORO, N. C. • SPARTANBURG, S. C.

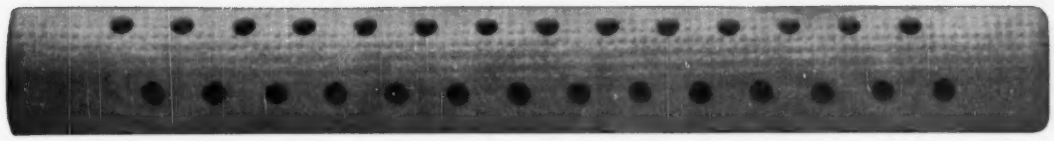
ATMA Parade of Progress



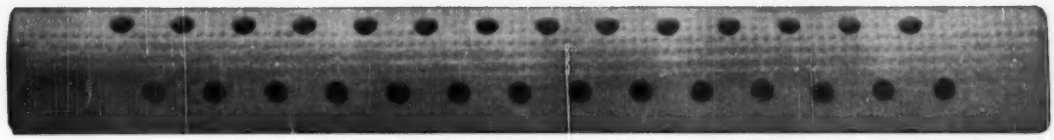
NEW...LIGHT-COLORED



SONOCO DYTEX® "L" TUBE



AT REGULAR TUBE COST



Now . . . from SONOCO . . . new ⅝" I.D., premium-grade, light-colored Dytex "L" Tubes that are superior to *any* on the market! And, the price is *no more* than standard dye tube cost!

It's another success for SONOCO research, completely substantiated through critical evaluation by leading mills. With Plastavon Sleeves, the new "L" tubes provide the perfect one-time combination for all standard forms of package dyeing and bleaching. In addition to natural and black, solid green may be ordered in ⅝" and 1⅝" I.D.

SONOCO offers a complete line of Dytex Tubes in standard diameters and in lengths from 6" to 61⁵⁄₁₆". Surfaces can be smooth or embossed. Solid colors of brown, green, tan and blue are available, and various colored end rings can be applied. Order a supply now.

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SONOCO

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MODERN TEXTILES MAGAZINE

February, 1960 Vol. 41, No. 2

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Established 1925

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The Principal Trade Groups

American Association of Textile Chemists and Colorists ..... Lowell Techn. Inst., Lowell, Mass.
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Synthetic Organic Chemical Manufacturers Association ..... 41 E. 42nd St., New York
Textile Distributors Institute, Inc. ..... 469 Seventh Ave., New York

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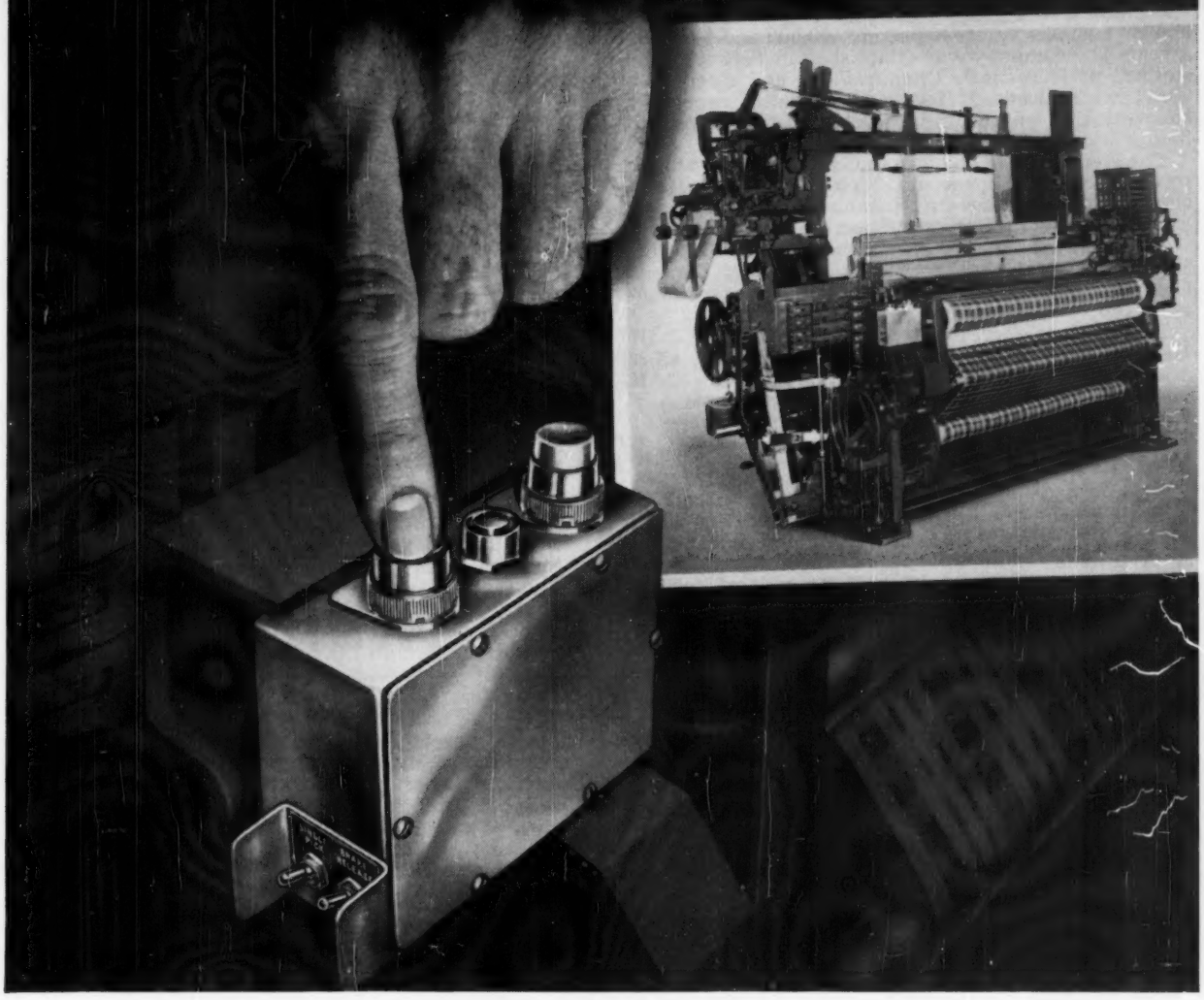
Now . . . Weaving is Easier!



THE NEW C-7 LOOM WITH THE ELECTRIC BRAIN

- ***Simplifies training of new weavers.***
- ***Combined with push buttons, reduces fatigue, lets the weaver spend more time weaving.***

The electric control is convenient, positive, and eliminates the heavy manual work. It's as easy to operate as flicking a light switch. No more shipper handles to pull, no more tugging on the handwheel. For start or stop, there are only two buttons to push. For jog reverse, a third button is used. A flick of a switch is all it takes to change to controlled single pick operation.

A weaver with a minimum of training can operate this loom safely despite high speed.

Lay reverses and shed opens automatically after a broken pick. Less weaver fatigue will help produce better quality and should allow increased work assignments.

A new electric brake and clutch drive has a flywheel effect for steadier operation, especially picking. Electric protection provides time for softer stops. The new electric control is safe. Takes less voltage than a toy electric train.

If you want to boost the efficiency, product quality, and employee morale of your mill, here's a loom that bears investigation.

For fancy cottons, synthetics, terry towels, and ginghams.

CROMPTON & KNOWLES
Corporation
MANUFACTURER OF
THE WORLD'S LONGEST LINE OF AUTOMATIC BOX LOOMS
WORCESTER, MASSACHUSETTS

CHARLOTTE, N.C. • ALLENTOWN, PA. • Crompton & Knowles Jacquard & Supply Co., Pawtucket, R.I. • Crompton & Knowles of Canada, Ltd., Montreal, Quebec

Heresite Buys General Coating

Heresite & Chemical Co., Manitowoc, Wis., has purchased for cash all property of General Coating Co., Woodbridge, N. J., effective Jan 1. The New Jersey plant will be operated as a wholly owned subsidiary of Heresite & Chemical Co. and will continue its principal work which is the application of Heresite products. In the future, Herecrol synthetic rubber will be added as a product for tank lining.

General Coating employs about 40 production men and its business varies between $400,000 and $500,000 a year. The company was established in 1946 with the support of Heresite & Chemical Co. and since then has been a licensed Heresite applicator, especially concentrating on the lining of tanks, tank cars and field work.

The Heresite branch office in Garwood, N. J. will be retained as a warehouse and shipping center for Heresite products to Eastern customers. The plant will also specialize in Herecrol Sheet rubber lining.

Management of the Woodbridge plant is Fred Sharpe, general manager associated with General Coating since 1947, and Max Ackermann, plant manager and chief engineer.

Directors of Heresite & Chemical Co. are C. H. Hempel, Ira L. Place and William F. Schnorr, all of Manitowoc, Wis. Officers of the company are C. H. Hempel, president; Ira L. Place, vice president; A. F. Rankin, secretary; and E. W. Haugh, treasurer.

World Fiber Congress

Some 3,000 delegates are expected to attend the Second World Congress for man-made fibers which will be held in 1962 in London, England. Speakers of international repute will speak at the Congress, which will be held on May 15-18, 1962, on general, technological and economic matters. The first world conference, organized by the International Rayon and Synthetic Fibers Committee, was held in Paris in 1954.

Avisco Aid to Education

American Viscose Corp.'s aid-to-education program for the 1960-1961 academic year will benefit 83 colleges and universities. Avisco's program is designed to aid these educational institutions in their overall programs and encourage the study of science and engineering. The recipients of the scholarships and fellowships are selected by the schools. American Viscose takes no part in this selection nor are the recipients under any obligation to the company.

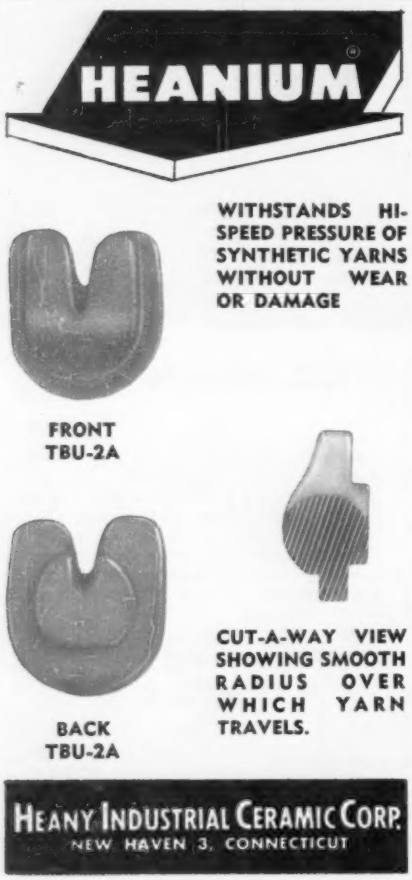
Industrial Rayon in Merger

Hayden B. Kline, president of Industrial Rayon Corp. announced on Dec. 21 that the board of directors had approved a plan for the combination of Industrial Rayon and Texas Butadiene & Chemical Corp. The proposal is subject to the completion of examinations and verifications of both companies now in progress and to the approval of stockholders of Industrial Rayon.

Texas Butadiene & Chemical Corp., a producer of butadiene and other petrochemical products and of high octane aviation gasoline, has a plant located near Houston, Texas, and has a 30% interest in a synthetic rubber plant now under construction near Marseilles, France. Its consolidated sales for the first 11 months of 1959 amounted to about $38,000,000. Its principal stockholders are Godfrey L. Cabot, Inc. of Boston, Massachusetts, and Carl M. Loeb, Rhoades & Co., Inc. and their associates in New York City.

The combination will take the form of an acquisition of Texas Butadiene & Chemical Corp. by Industrial Rayon for approximately 1,675,000 shares of common stock presently outstanding.

Kline will become chairman of the board of directors and John Fennebresque, president of Texas Butadiene & Chemical, will become president and chief executive officer of the combined company.


HEANIUM
WITHSTANDS HI-SPEED PRESSURE OF SYNTHETIC YARNS WITHOUT WEAR OR DAMAGE
FRONT TBU-2A
CUT-A-WAY VIEW SHOWING SMOOTH RADIUS OVER WHICH YARN TRAVELS.
BACK TBU-2A
HEANY INDUSTRIAL CERAMIC CORP.
NEW HAVEN 3, CONNECTICUT

PTI Textile Conference

Eighty-five guidance counselors and schoolmen attended the recent Textile Career Conference sponsored by the Philadelphia Textile Institute, Germantown, Pa. Purpose of the conference was to acquaint local area schools with opportunities in the textile industry.

Heads Arbitration Council

Edward M. Fuller, of Greenwood Mills, Inc., was elected chairman of the General Arbitration Council of the Textile Industry at the annual meeting. He succeeds W. Ray Bell, The Association of Cotton Textile Merchants of New York, chairman since 1949. Howard A. Sherman was renamed secretary-treasurer of the council.

New Stein Hall Plant

Stein Hall & Co., Inc., has dedicated a new subsidiary, Stein Hall Southern Inc., at Charleston, S. C. The plant of the new $800,000 facility will process guar, a gum extracted from the seed of the guar plant. The processed product, "Jaguar," is used in a number of important industries, including textile and food processing, mining and paper manufacturing.

Christiana Fibres Formed

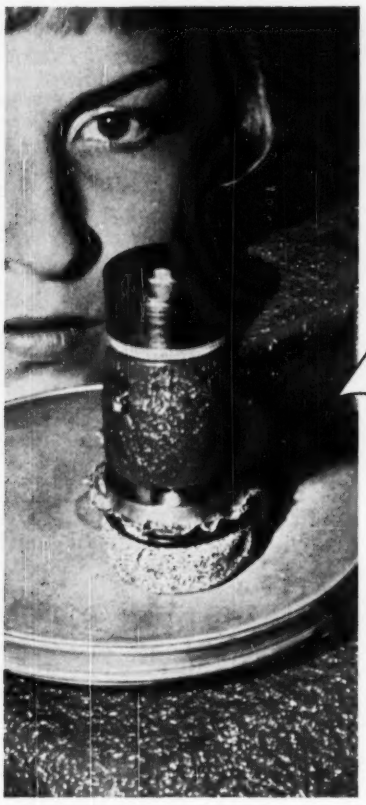
Christiana Fibres, Inc., a new textile processing firm, has been formed in Washington, Del. The firm will produce tops, on a commission basis, from both natural and dyed synthetic tow. The company's officers are Silas M. Wheellock, president; William T. Harvey, Jr., vice president, and Harry F. Brown, Jr., secretary-treasurer. All three have been associated with Du Pont's Technical Service Section.

New Research Building

Minnesota Mining and Manufacturing Co. will build a $10,000,000, 14-story administration building at its research center near St. Paul, Minn. Site preparation has started and the building is expected to be completed early in 1962.

Creslan Foreign Outlets

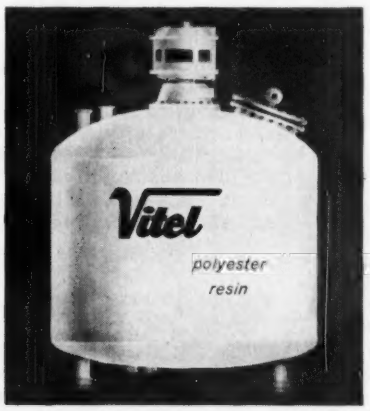
American Cyanamid Co.'s Creslan acrylic fiber is being marketed for the first time in Germany and Switzerland. Acrylic fiber produced at Cyanamid's Santa Rosa plant near Pensacola, Fla., is being made available to mills and processors serving the markets in these two European countries, the company reported.



Vitel

*means "Freedom"**

Greater resistance to pilling is just one advantage realized with a fiber spun from VITEL, newest of the polyester resins. But, as exhibited by VYCRON (America's most advanced self-care fiber by Beaunit Mills, Inc.) in severe tests by U. S. Testing Company (ASTM Test Method D1375-55T– Procedure "B"), this pilling resistance is distinctly superior to similar fibers. So much so that VYCRON is ideally suited for shirtings, even can be used safely in knit goods. Interested? Further details are yours by writing Goodyear, Chemical Division, Dept. N-9476 Akron 16, Ohio.



Other Advantages of Fibers Spun from VITEL:

Exceptional yarn strength—good fiber-to-fiber cohesion
Outstanding dyeability and colorfastness
Excellent wrinkle resistance—ideal for wash-and-wear
Easy processability on standard milling systems

GOODYEAR
CHEMICAL DIVISION

*NEW FREEDOM IN THE *MANUFACTURE* OF A WIDER RANGE OF WONDER FABRICS

Vitel—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

Vycron—T. M. Beaunit Mills, Inc., Fibers Division, New York, N.Y.

ATMA

Parade of Progress

JOIN THE PROFIT PARADE! VISIT CONVENTION HALL IN ATLANTIC CITY, N. J. IN 1960* AND SEE THE WORLD'S LARGEST COLLECTION OF ADVANCED TEXTILE MACHINERY. OVER THREE HUNDRED (300) EXHIBITORS WILL DISPLAY OVER THIRTY MILLION DOLLARS ($30,000,000.00) WORTH OF MODERN EQUIPMENT. RECENT ADVANCES IN TEXTILE CHEMISTRY WILL BE MATCHED BY THE LATEST MECHANICAL DEVELOPMENTS.

ALL UNDER ONE ROOF! PLAN NOW TO JOIN THE "PARADE OF PROGRESS" IN 1960*.

American Textile Machinery Exhibition

International

MORE THAN 300 EXHIBITORS, UNDER A SINGLE ROOF, WILL DISPLAY THE LATEST TEXTILE MACHINERY AND TECHNIQUES.

*MAY 23 - 27, 1960
ATLANTIC CITY CONVENTION HALL
NEW JERSEY, U.S.A.

Honor Israel Rogosin

Israel Rogosin, president of Beaunit Mills, Inc., was honored at a recent cocktail party and press conference given by the board of directors of the Hebrew Home & Hospital of N. J. at the Savoy Hilton Hotel, New York City. The occasion was the announcement of Mr. Rogosin's contribution of $250,000 to the Home's hospital building fund. Joseph Gross presented Mr. Rogosin with an illuminated scroll. Present at the ceremony were Governor Meyner of New Jersey and Abraham Harman, Israeli Ambassador to the United States.

Rayonier Improvements

Rayonier Inc. will convert its Hogulam, Wash., pulp mill to a newly-patented process at an estimated cost of $7,500,000. The plant, which has been on an ammonium base, will switch to a sodium base process. Rayonier supplies chemical cellulose used in the production of rayon and acetate filament yarn and fiber.

Metlon Suing Dow

The Federal District Court in North Carolina has granted a motion to dismiss the suit against Metlon Corp. for infringement of the Dow patent to produce metallized metallic yarns. Metlon has now brought an action in the Federal District Court for the Southern District of New York claiming invalidity of the Dow patent. Metlon also has requested an injunction against interference with its customers and damages resulting from Dow's activities relating to the patent.

New Indian Head Division

Indian Head Mills, Inc., as a result of the success of its decentralized organizational program, has established a new operating unit, the Greige and Industrial Fabrics Division, a combination of the former Greige Goods Division and Industrial Fabrics Division. R. Carl Dick, Jr., is vice president and general manager of the new unit.

Gets Performance Label

Allied Chemical's Certified for Performance label has been awarded to "Destiny," a new textured filament nylon carpet recently introduced by Croft Carpet Mills, Inc. Destiny is the second textured Caprolan carpet line by Croft to earn Allied Chemical's performance label. It is available in 12 and 15-foot widths in 29 shades. Destiny is said to be priced competitively for volume sales. The performance program was started by Allied Chemical to assure consumer satisfaction in all carpets identified with the textured Caprolan label.

Reeves to Sell Curon

Curtiss-Wright Corp. has appointed Reeves Brothers, Inc., as selling agent of its "Curon" foam to the wearing apparel trades for laminating and quilting. Machinery developed by Curtiss-Wright for laminating Curon will be located in metropolitan New York-New Jersey and operated by Reeves Brothers. Curon is reported to have good thermal qualities and is ideal for shape retention in wool, knitted and jersey fabrics. When laminated to woven woolen, it permits the use of lighter weight wool fabrics.

Flagg-Utica Expanding

Flagg-Utica Corp., a leading manufacturer of knit goods, apparel and industrial cloth, is expanding into a fully integrated operation following its acquisition of the Greenville Mills, Grantville, Ga. The company's program embraces an extensive modernization program calling for an expenditure of $1,500,000 at Grantville, to convert the facility to the manufacture of high quality knitted yarns by adopting the Roberts high draft spinning system. Roberts Co., manufacturers of Arrow textile spinning machinery, has been awarded the contract for a complete changeover modernization involving 12,000 spindles at a cost of nearly $250,000.

To Sell Reymet Yarn

J. J. Klumpp Co. of Philadelphia, Pa., has been appointed selling agent for Reynolds "Reymet" aluminum yarn and aluminum staple products in nine eastern and New England states, Reynolds Metals Co. announced. The Klumpp firm will represent Reynolds in Vermont, New Hampshire, Maine, Massachusetts, Rhode Island, New York, Pennsylvania, Delaware and Maryland.

To Sell Ruti Looms

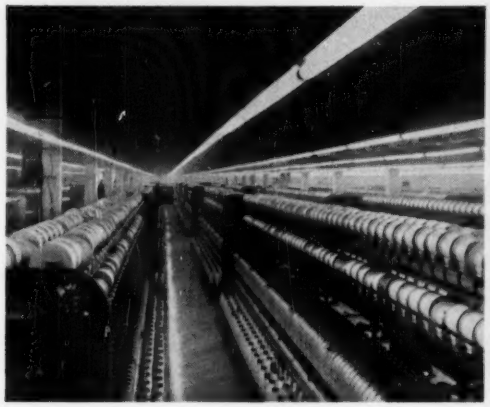
The H. J. Theiler Corp. has been named exclusive agent for Ruti Machinery Works, Ltd., of Ruti, Switzerland, H. J. Theiler, president, has announced. Ruti, well known for its complete line of looms, also manufactures slashers and other textile production machinery and equipment. The Theiler firm has completed an addition to its factory building and has added three specialists to its sales and service staff.

Metlon Raises Prices

Metlon Corp. has increased prices for its Metlon yarns, effective January 15. Metlon said continuing sharp rises in manufacturing costs made it necessary to reflect part of these rises in higher prices.

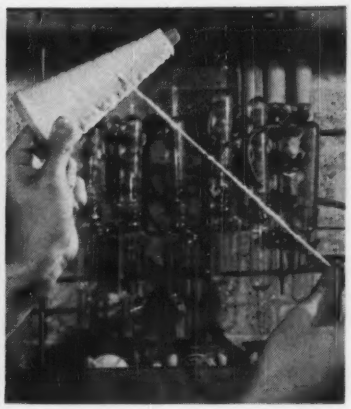
Here's how you insure your yarn's success with Duplan's TEXTUR-ENGINEERING!

For Duplan to textur-engineer your yarns, means that yarns receive a specialization of method resulting from over 60 years' experience in yarn throwing . . .

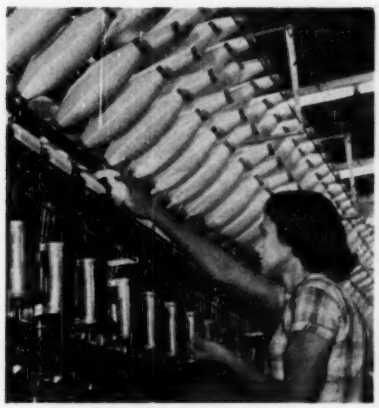


from a continuing multi-million dollar plant and equipment modernization program . . .

from technical specialists with years of yarn know-how . . .



through research and development by Duplan's own textur-engineers . . .



through skilled operating hands in three modern plants . . .

through thorough hand-and-eye inspection and examination . . .

through testing and sampling in Duplan's laboratory before shipping . . .

Only Duplan textur-engineers all six:
Saaba; Superloft; Fluflon; Helanca; Taslan, Textralized (for Ban-lon garments)

Duplan

WORLD'S LARGEST THROWSTER
3 THROWING MILLS
- **Winston-Salem, N. C.**
- **Kingston, Pa.**
- **Cleveland, Tenn.**

THE DUPLAN CORPORATION, WINSTON-SALEM, N. C.

WILLIAM A. WOOD, JR., F. J. POTTER, CHAS. J. DONOHOE, WINSTON-SALEM, N. C. — TEL: PARK 5-0231
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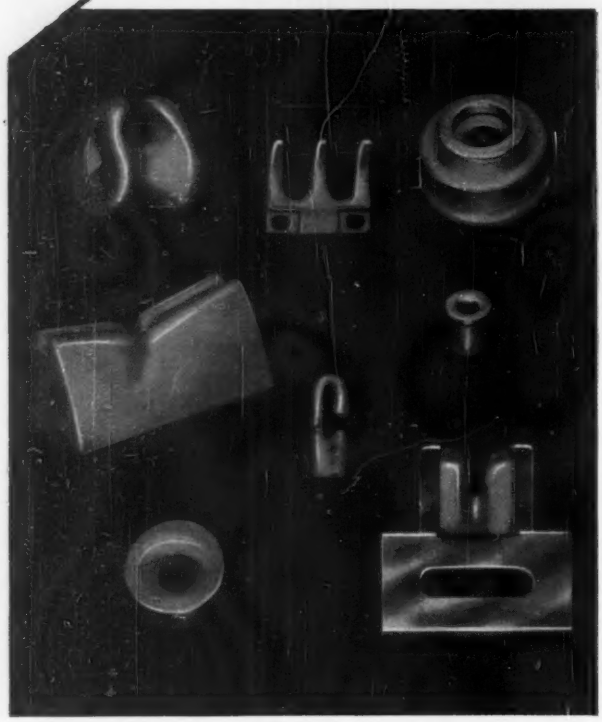
Now Available!

NEW A-70 ALUMINUM OXIDE GUIDES BY LAMBERTVILLE!



Why do A-70 Aluminum Oxide Guides LAST LONGER?

Lambertville Ceramic has developed an unique, revolutionary process in which micron-sized grains of material are fused in a manner that increases hardness, *gives maximum resistance to wear.* In addition, the resulting exceptional smoothness—heretofore unknown in Aluminum Oxide Guides—diminishes friction-caused damage to the yarn. A-70 Guides can be made in practically any standard guide shape. Send for free samples, for comparison with your present guides. (Specify shapes.)

Aluminum Oxide

Lambertville Ceramic AND MANUFACTURING COMPANY

LAMBERTVILLE, NEW JERSEY

LAMBERTVILLE: YOUR GUIDE TO BETTER OPERATIONS!

Elect New Enka President

American Enka Corp. recently announced the election of Philip B. Stull as president and chairman of

Phillip B. Stull

the board. He succeeds William G. Brady, Jr., who retired at the end of the year after serving as president since the death of former president John E. Bassill last April.

Mr. Stull was formerly a vice president and director of Hercules Powder Co. and has been a director and member of the executive committee of American Enka since 1956.

New Kind of Dacron

Dacron Type 62, a new premium type polyester filament yarn said to have the hand, dyeability and printability of silk along with the properties inherent in other types of Dacron, is now being manufactured on a limited basis by Du Pont. Type 62 can be readily dyed with cationic colors and dispersed colors; it differs from regular Type 56 yarn in dyeing characteristics.

While Type 62 is not expected to replace any of the current Dacron fibers, it is said to offer fabric manufacturers increased versatility of design when used alone, in combination with other types of Dacron, or with other fibers. Fabrics containing Type 62 include: 100% constructions of surahs and taffetas; combination fabrics and cross dyed combinations.

Type 62 is a multifilament, semi-dull yarn now made in 40 and 70 deniers; the former (27 filament) sells for $2.41 a pound and latter (50 filament) at $2.01 a pound.

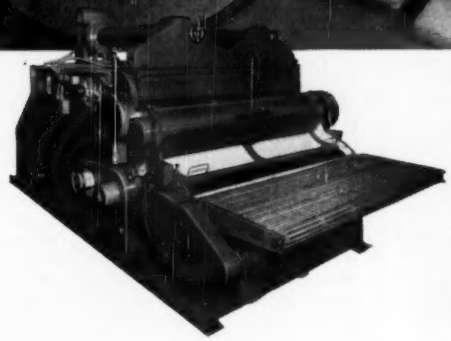
Recent Saco-Lowell Orders

Clinton Cotton Mills and Lydia Cotton Mills, of Clinton, S. C., have placed orders with Saco-Lowell Shops for high compression calenders for all their pickers. Clinton and Lydia also ordered 216 deliveries of Saco-Lowell versa-matic drawing, and 65 sets of double line uniflex lifting rolls, which will be applied to the roving frames to accommodate 16 by 42-inch cans from the versa-matic drawing.

More Corn Starch Output

Steadily increasing demand for chemically modified corn starches is a prime factor in a major expansion of corn milling operations by National Starch and Chemical Corp. at its Indianapolis, Ind., plant. New equipment to be installed will include adaptation of the Dorr Clone method of separating oil containing corn germ during the initial stages of processing. This method makes use of centrifugal germ separation principles and replaces the conventional flotation process.

HUNDREDS OF NEW PRODUCTS
from RANDO-WEB® NONWOVENS
mean BIGGER PROFITS for YOU



Dress materials, drapes, fabrics, ties, disposable cloths, filters, shoe liners, rug backings, seed planters, chamois cloths, greeting cards, reinforcement for plastics, abrasive wheels and hundreds of other profitable products are being made with nonwoven materials from RANDO-WEB(S)®.

There is a RANDO-FEEDER® and RANDO-WEBBER® to fit most requirements in 40", 60" and 84" widths. There are no other machines in the world that can make uniform random webs like them.

The Curlator FIBR-SAVR, now available for these machines, gives added economy to the manufacture of nonwovens. It trims one or both sides of web or multiple slitting in any desired strip width and returns the trimmed (unbonded) fiber to the feeder for reprocessing.

It will pay you to see webs made with natural or synthetic fibers or blends on the RANDO-FEEDER and RANDO-WEBBER.

Call or write us today for demonstration or Bulletin No. 105.

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TEXTILE DIVISION
CURLATOR®
CORPORATION
EAST ROCHESTER, NEW YORK

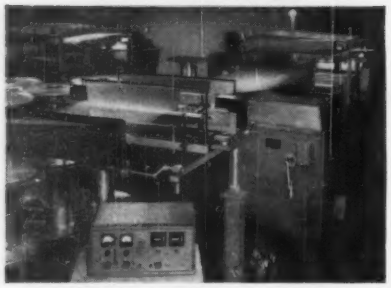
FOSTER BRINGS

With LINDLY Electronic Controls

Lindly & Company, Inc. of Mineola, N. Y. and Foster Machine Company of Westfield, Mass. take great pleasure in announcing that, effective in January 1960, Foster is the exclusive sales representative for Lindly Electronic and Electrical Products for the textile industry in the U.S.A.

Complete automation in the textile industry is impossible without automatic controls. Lindly Electronic and Electrical Controls supply this missing link. At present they include the following: —

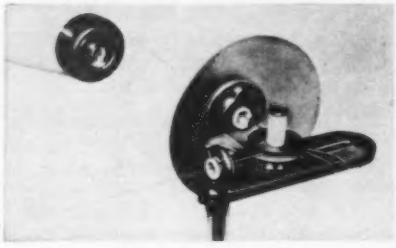
LINDLY AUTOMATIC YARN INSPECTOR



Lindly Automatic Yarn Inspector for filament yarns.

Used primarily by producers and processors of synthetic yarns, it is a high speed, ultra sensitive photoelectric instrument for detecting yarn defects such as broken filaments, strip-backs and fluff balls in warping. It can be made to operate a counter, a signalling device, or to actuate a machine stop switch — singly or in combination for any degree of imperfection. For example it can be made to count minor defects and to stop the warper only for repairing major defects.

LINDLY ELECTROTENSE



Lindly Electrotense.

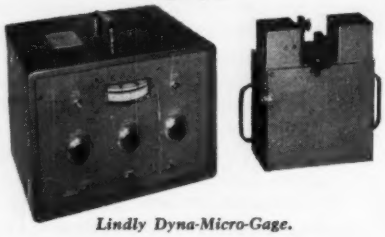
This unique yarn tensioning device for warp creels, winders, twisters, knitting machines, looms and similar operations provides completely uniform tension for any number of ends and the tension for all ends can be varied at will by turning only *one* dial. It consists of two conventional type discs, with a small electromagnetic coil beneath. The lower disc is made of nonmagnetic brass, while the upper disc is of magnetic iron. Thus when the coil is energized through a central electronic control, the upper disc is attracted downward, pressing the yarn between it and the lower disc in any degree desired. The pressure is pulsating which fact prevents backup of twist and helps to keep the tension discs clean and free turning.

LINDLY PHOTO-SCANNER

This is a very sensitive photoelectric inspection device for use on tricot knitting machines to scan the cloth continuously for defects during the knitting operation and automatically stop the knitting machine when defects occur. The scanner is mounted above the center of the knitting machine. Oscillating back and forth, it scans the cloth along a path about 1 inch wide and 1 inch from the needle bar and up to about 3 inches from each selvage. Defects are kept to approximately 3 inches in length; patrolling labor is greatly reduced.

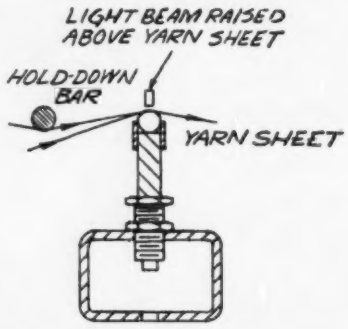
Lindly Photo-Scanner for warpknit fabrics

LINDLY DYNA-MICRO-GAGE



Lindly Dyna-Micro-Gage.

Among the many uses for this instrument is the continuous monitoring of spun and filament yarns to an accuracy of a few millionths of an inch. It is photoelectric in principle, utilizing a change in amount of light falling on a phototube for its operation. It can be set for almost any desired sensitivity range, from quite coarse to very fine. Will check the average denier of filament yarns, the uniformity of spun yarns on a quantitative basis, the size of holes in spinnerets; measure and record yarn tension; check and monitor the strength of chemical solutions. In most cases can also be provided with a feed-back system to continuously control the process itself.



Cross section drawing of Lindly Automatic Spun Yarn and Tire Cord Inspector.

LINDLY SPUN YARN AND TIRE CORD INSPECTOR

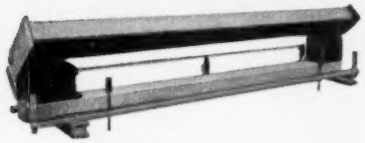
This differs from the regular Lindly Automatic Yarn Inspector in that the defects for which the unit is actuated can be selected on the combined basis of length and height. Long, low defects will be caught as readily as short, high ones; yet knots can be made to pass through undetected. Application has been successful on tire cord and wool and worsted yarns, where it has been discovered that it is cheaper to remove defects during the warping operation than subsequently in mending, particularly when these defects tend to cause yarn breakage and machine down time later on.

LINDLY THREAD AND LINE INSPECTOR

This is also a modified version of the regular Lindly Automatic Yarn Inspector. It is used to inspect, on a single or double end basis, thread, yarn, string, fishing line, medical sutures, etc. Most fishing line manufacturers in this country are using it. Another application is for qualitative sampling by large purchasers of yarns.

ELECTRONICS TO TEXTILES

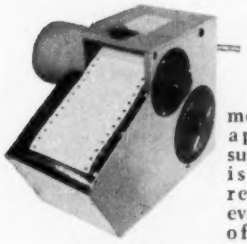
LINDLY AUTOMATIC END BREAK DETECTOR



Lindly Automatic End Break Detector.

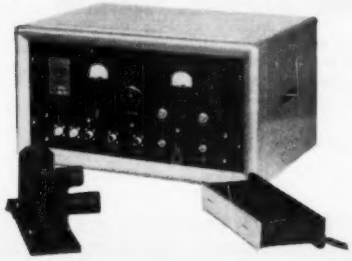
This unit, photoelectric in principle, uses two light beams traversing the width of the yarn sheet, one above and one below. It detects a broken end when a wave or ripple in the end is caused by the sudden release of tension. Usually the broken end remains back in the creel where it is easily spliced up. A combination of the Lindly Automatic Yarn Inspector and this End Break Detector makes a very effective team for controlling yarn quality in a warping operation.

LIND-RECORDER



Lind-Recorder.

This instrument has many applications, such as when it is desired to record or time events of an on-off or yes-no nature, such as machine down time, units produced per machine, including yards, knots, r.p.m., picks per minute, etc. Furthermore, the Recorder can be placed at any reasonable distance from the happening (for instance in the supervisor's office) so that all information is continuously fed into a central location. No filling of ink reservoirs and no wet paper storage.



Lindly Photoelectric Seam Detector.

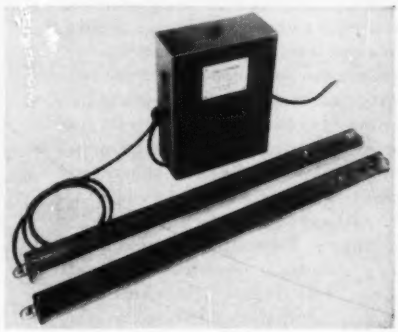
LIND PHOTOELECTRIC SEAM DETECTOR

This device is successfully used as a non-contact method of indicating the presence of seams in fabrics during shearing, calendering, printing, coating, tubing and all other operations preceded by batching. It can be made to actuate a stop motion or counter, to lift a pressure roll or to perform any other action required because of the presence of a seam. It does this within a few thousands of a second, making detection practically instantaneous.

LINDLY AUTOMATIC YARN DEFECT ANALYZER

Lindly Automatic Yarn Defect Analyzer.

This is a portable model of the Lindly Automatic Yarn Inspector, filament or spun yarn type, for use on a single end of yarn or roving. It consists of an electronic control unit mounted in a cabinet on a dolly and a specially designed detecting head. This head is adjustably mounted on a vertical column and can be moved up and down and back and forth. The unit can be wheeled up to a machine and the head set to inspect a single end of yarn while in process. Thus it is valuable for spot checking or sampling a given batch of yarn, or the output of a certain machine or spindle for laboratory or quality control purposes. One mill is using it to sample yarn batches, twenty ends at a time.



Lance Static Eliminator.

LANCE STATIC ELIMINATOR

This instrument, made in a variety of models, has an application wherever there is a problem in textile operations due to static electricity. It causes a high voltage discharge from pointed electrodes into the air, causing the fibres to be surrounded by ionized air, which serves to discharge the static electricity accumulated all around the surface of the fibre. Whereas the voltage is high enough to effectively ionize the air, it cannot harm the operator who accidentally comes in contact with the electrodes.

Future Developments

Other Lindly Products which we hope to announce in the not too distant future include a Fabric Inspector and a Tension Control and Stop Motion for circular knitting machines.

★ ★ ★

Where Will You Start?

The trend in all industry is to automation. Automation will not come all at once. It will come step by step, as reliable automatic controls are developed for each processing operation.

Lindly Electronic and Electrical Controls for spinning, twisting, warping, knitting and finishing point the way. Where will you start? Use the coupon to tell us. Let us help you to decide.

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NEW AUTOMATIC SPOOLER
TYPE "F"

FOR LARGE PACKAGES

This newest in the famous line of Barber-Colman Automatic Spoolers combines the best features of some predecessors, and adds a few outstanding characteristics of its own. For example, an improved and lengthened auto-skewering bobbin pocket now takes bobbins up to 12¼" long.

SEE IT AT...

AMERICAN
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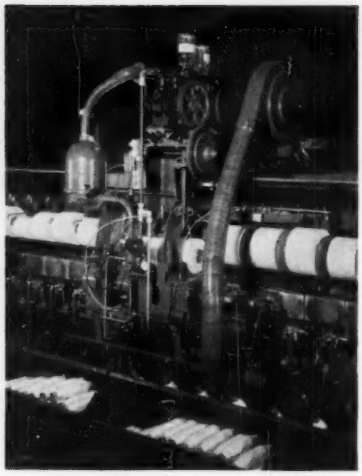
MAY 23-27, 1960

The quick-set snick plate, one of the simplest and most effective yarn cleaners ever developed, is found again in its familiar location. The bakelite winding drum is back, inherently balanced as moulded, and now with a crossover double groove. One new feature is the *automatic* sorter, working in conjunction with the conveyor belt, that separates empties from tailings bobbins. Another useful feature is the double supporting arms, with built-in brake, for cheese (or cone). This machine makes big 6½-lb. packages from big (up to 12¼") bobbins — for use on warping, doubling, twisting, backwinding, sale cones, knitting, unifil, shuttleless looms, or quillers. *For many other features and full details, see your Barber-Colman representative.*



Above, a close-up view of the new Type "F" traveler showing the new cheese-arm plow, brake-actuating mechanisms, simplified construction, and accessible auxiliaries.

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The swatches of The OFFICIAL WHITE COLOR CARD of The Warp Knitters Manufacturers Association were prepared from formulae using DERGOPAL Fluorescent Whitening Agents

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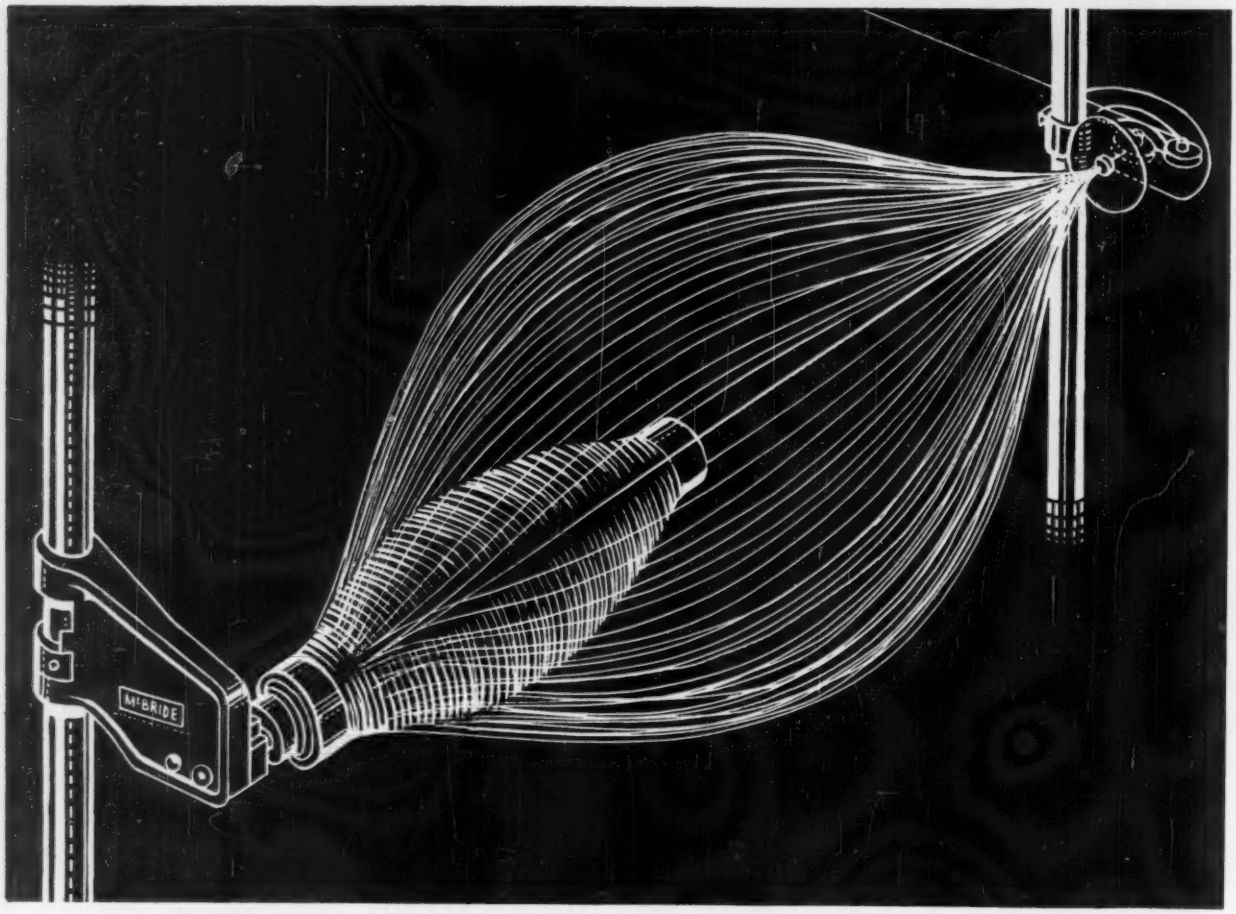


HEAVY DUTY CREEL ARMS

Are your creel arms overloaded? Have you a problem reaching the target (entrance eye) on your tensions? If so you are losing warping efficiency. McBride's heavy duty package arm is designed specifically to correct this situation!

No Sag—even the largest packages stay straight on target for accurate over end draw off.

Fast Change—arm swings back out of way for package change, no interference with ballooning yarn.

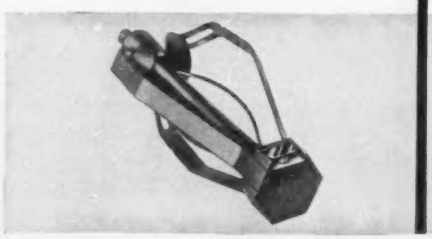
McBride swing arm assemblies are made to fit all packages.

Instant changeover with McBride Quik change cone and large diameter package holders.

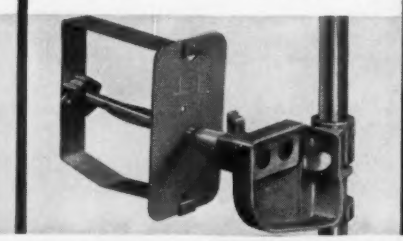
Complete new creels or fittings to modernize your existing creels.

Write today for our latest catalog.

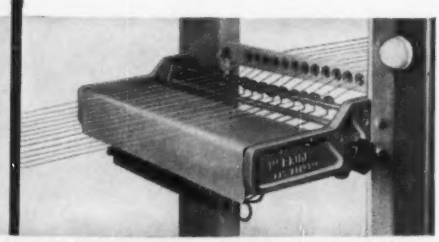
UNIVERSAL CONE HOLDER



LARGE DIAMETER PACKAGE HOLDER



MERCURY SWITCH STOP MOTION



LET McBRIDE STUDY YOUR WARPING SITUATION. YOU MIGHT BE SURPRISED WITH THE COSTS YOU CAN SAVE, THE IMPROVED QUALITY IN THE WARPS YOU PRODUCE
CREELS *FOR EVERY PURPOSE* CONE HOLDERS, STOP MOTIONS, TENSION CONTROLS, WARP BEAMS, FLANGES, CARPET INSPECTION TABLES, METAL AND WOOD ROLLS.

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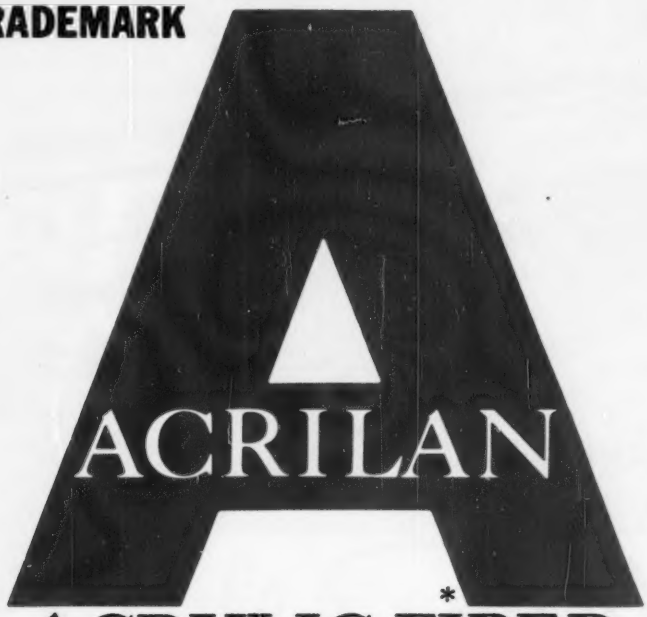
THE CHEMSTRAND CORPORATION, MANUFACTURER OF ACRILAN* ACRYLIC FIBER, ANNOUNCES A LICENSING PROGRAM FOR ITS REGISTERED TRADEMARK



ACRYLIC FIBER*

With consumers, retailers, cutters, convertors and millmen alike, no fiber has achieved a higher reputation than Acrilan—the acrylic fiber made by The Chemstrand Corporation. Now, to protect that reputation—and also to protect you and your customers—Chemstrand announces a licensing program that will insure that all fabrications carrying the A-Acrilan trademark, as illustrated, contain not less than a specified percentage of Acrilan.

This program provides for the licensing of this trademark as an "ingredient mark." This means that it can be used only on fabrications containing Acrilan acrylic fiber in those percentages that provide maximum utility, quality fashion and great consumer value. The percentages required will be approved by The Chemstrand Corporation.

To carry out this program the following controls will be instituted:

1. Mills or convertors wishing to use this trademark on a fabrication must submit samples of the finished fabrication to The Chemstrand Corporation for testing.
2. If the fabrication meets the standards of The Chemstrand Corporation, the mill or convertor will be granted permission to use, and authorize their customers to use, this trademark on that fabrication and products made therefrom as an ingredient trademark.
3. Chemstrand will from time to time purchase articles bearing this trademark and test such articles to determine whether the fabrication is a duly licensed fabrication and contains not less than the required percentage of Acrilan.

Millions of viewers see the A-Acrilan trademark on coast-to-coast network TV...millions more see it constantly in America's leading magazines and major newspapers. This control program means that the multimillion-dollar advertising that Chemstrand puts behind Acrilan will work specifically for *you!* For further information on this important new control program, write the Merchandising Dept., The Chemstrand Corporation or call OX 5-5100, Ext. 264.

Chemstrand makes only the fiber; America's finest mills and manufacturers do the rest. *Registered trademarks of The Chemstrand Corporation for its acrylic fiber.

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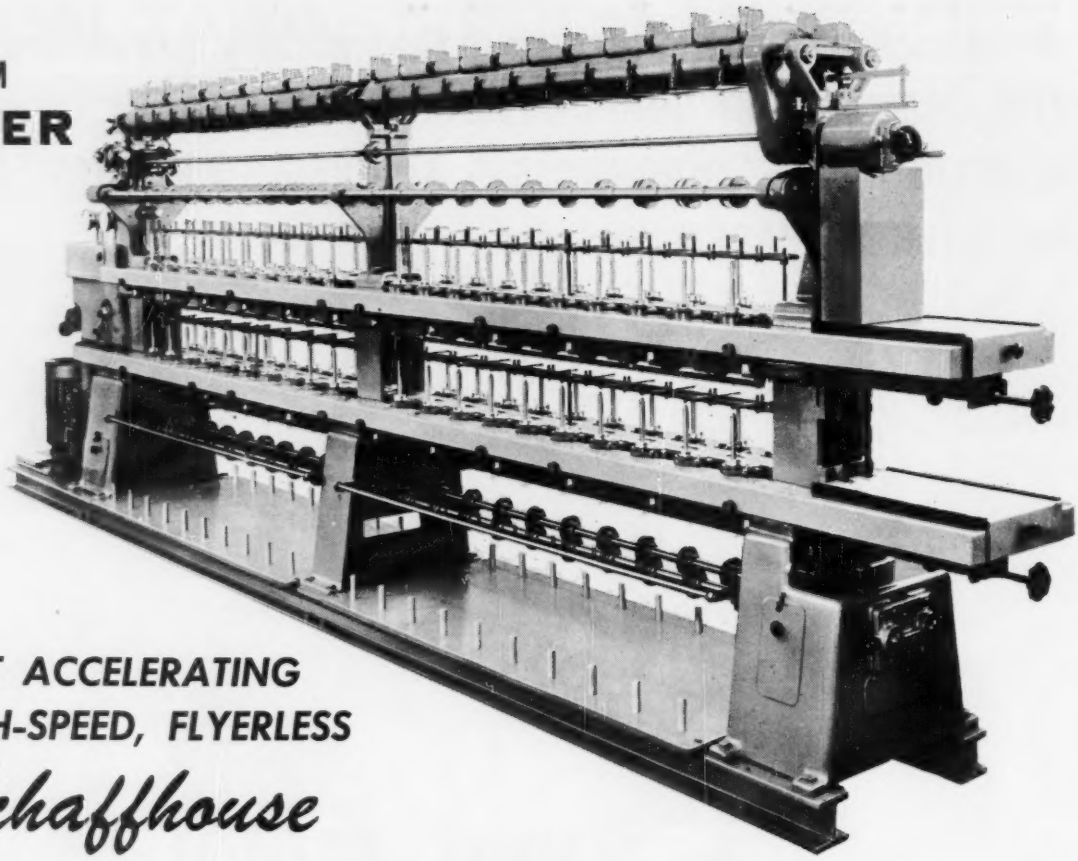

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Built by Schaffhouse in Switzerland — known for over 80 years as designers and fabricators of precision textile machines — the "Suma" model PERMITS INSTANT STOPPING OF EACH INDIVIDUAL SPINDLE BY SIMPLY PUSHING IT CLEAR OF THE DRIVING BELT — WITHOUT TOUCHING ANY MOVING PARTS OF MACHINE — OR NECESSITATING THE USE OF ANY SPECIAL TOOLS. LONG SPINDLE LIFE.

OTHER FEATURES:

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- Elongation is controlled by speed variator. A speed indicator facilitates the control of elongation.
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- Chrome-nickel steel spindles—shafts rotating on inner race of precision ball bearings.
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- Each spindle bank is driven by a mill-tested, endless, wear-resistant nylon belt.

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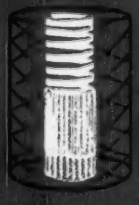
OUR 50th YEAR

Franklin Process



X-ray view of Franklin Package – the "secret" of uniform shades. Don't say "packaged dyed". Say "FRANKLIN DYED".

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Caprolan textile yarns are performing well in automotive and home furnishings fabrics.

If you have a tough job, we have the tough yarn for it. Call us for information and assistance in improving your products with Golden Caprolan. Our technical service, end-use development and fiber application staffs are ready to help you.

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MODERN TEXTILES
Magazine

Publisher's Viewpoint

The Rising Tide of Manmade Fibers

Manmade fibers in the United States continue with unabated strength their forward march into expanding areas of usefulness. And as the decade of the sixties opens we can expect that gains of the past three decades will be continued and perhaps bettered. A clear and sober light on the successes of manmade fibers is shed by the latest report on inter-fiber competition provided by that diligent and highly competent source, the Textile Organon, statistical bulletin of the Textile Economics Bureau, Inc.

According to the Organon, the ten years from the beginning of 1949 to the end of 1958 show that manmade fibers have gained at a steady pace in competition with cotton and wool in all but a few end uses. The continuing study of fiber end use consumption made by the Organon is derived from data of fiber consumption in 101 uses in apparel, home furnishings, and other consumer products as well as the increasingly important area of industrial end uses.

In the latest Organon study it is noted that a total of 1,629,000,000 pounds of manmade fibers were consumed in 1958. This was 26.3% of an estimated total of 6,189,000,000 pounds of cotton, wool and manmade fibers consumed that year. By way of contrast, consumption of manmade fibers during the years 1949-1950 averaged 1,191,-000,000 pounds or 20% of the total. Thus in less than a decade there has been a gain for the manmades of 5.9%.

Turning toward the natural fibers, cotton consumption in 1958 was 4,021,000,000 pounds or 65% of the total compared with an average consumption in 1949-1950 of 3,908,000,000 pounds or 67.1% of the total. Wool consumption 1949-1950 averaged 726,000,000 pounds or 12.5% of the total. In 1958 wool's use dropped to 539,000,000 pounds or 8.7% of the aggregate consumption of fibers.

What are the causes for these shifts in fiber use leading away from the natural fibers toward the increasing use of manmade fibers? Among the factors cited by the Organon are the trend toward lighter weight apparel "which brings into use cloth weighing less per yard and also the fact that there are fewer yards per average garment in many cases." Other factors noted by the Organon are the increasing use of so-called "sport" garments in everyday wear including their use as replacements for old-fashioned, strictly utilitarian work clothing; the shortening of the work week leading to greater demand for informal leisure wear, and style changes that lead to the discarding of garments before they have been worn out.

Industrial Uses Move Ahead

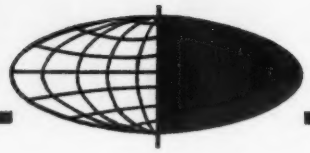
In another important way, the Organon's study shows gains made by the manmade fibers due to the toughness, and durability of these versatile chemical materials. In the field of industrial uses, the manmade fibers have shown remarkable progress. In 1958, industrial uses of cotton, wool and manmade fibers amounted to a total of 1,163,000,000 pounds, "considerably less," says the Organon "than the average of 1,391,000 pounds consumed in 1949-1950." Cotton consumption, in this field, dropped from 951,000,000 pounds to 624,000,000 pounds or percentagewise from 68.4 to 53.6. Wool use dropped from an average of 79,000,000 pounds in 1949-1950 to 30,-000,000 in 1958 a percentage from 5.6 to 2.6.

But manmade fiber use in industry jumped from 361,000,000 pounds in 1949-1950 to 509,000,-000 pounds in 1958. Measured in percentages this increase was from 26 to 43.8%—truly an amazing increase. The major areas of this expanded use, the Organon says, were in tires, transportation upholstery, hose, belting, electrical applications, felts, and filtration materials.

The fact that manmade fibers made their biggest gains in industrial uses where performance standards are carefully set and carefully measured, and where no excuses for failure are tolerated is indeed proof that these fibers are truly "engineered" textile materials which can be shaped and adapted to do a job better than natural fibers.

A. J. McCullough

TEXTILE NEWS



World Wide

THE US-USSR TEXTILE PACT, which will see more than 40 American companies supply machinery to build a $30 million textile plant near Kalinin, contains a double warning for Western textile interests, European trade leaders feel. First, the USSR will require fewer and fewer textiles from Western Europe, a primary supplier since World War II. And, second, the USSR will in the near future start competing with Western mills for the expanding markets of the under-developed nations.

"KHRUSHCHEV'S NOT FOOLING," was the way one French textile leader put it. He referred to the announcement late last fall that Russia would embark on a giant 7-year program of consumer product development. This was followed at the year end with news that the U. S. firms would supply $20 million of equipment, and probably contribute a good portion of the $10 million in construction costs remaining. The 50,000-spindle plant, one of the largest to be built anywhere since World War II, should be ready for assembling in about 12 months. It will be able to spin, weave and finish cotton, worsted blends and synthetics.

JAPANESE MANMADE fiber plants will be turning out a number of new products, most under license agreements. They include: Kurashiki Rayon and Kanegafuchi Spinning, which together are to produce Vinylon K-56 (a polyvinyl alcohol fiber); Nitto Chemical, to make high pressure polyethylene; Kurashiki Rayon and Mitsubishi Rayon, to make Vinylon filament yarn; Dai Nippon Spinning, Vinylon staple; Toyo Rayon, Taslan and vinyl-coated nylon tarpaulin, the latter with Asahi Kagaku Kogyo K.K. And Nitto and Hodogaya Chemical are to make toluene-z-isocyanate, a polyethylene-polyester base, under agreement with Bayer.

HONG KONG'S OFFER TO CURB exports of cotton and woven garments to the U. S. for a 3-year period starting July 1 left the Japanese dismayed. Japan, of course, was glad that Hong Kong would cut down on exports and, perhaps, bring fewer protests from U. S. manufacturers. But the Colony's offer included provision for increased shipments in 1960-62. Japan feels it developed this market in the U. S. and itself has imposed export limits. Spokesmen for the Chinese Manufacturers Association in Hong Kong, meanwhile, warned that most of the Colony's mill men opposed the Government offer.

BRITAIN'S CHEMSTRAND, LTD., will produce Acrilan staple in a variety of colors at its new Coleraine plant, North Ireland. Black staple is being offered, with other colors to follow in the next few months. A 21¢ a pound premium for the black is to be charged over previous staple and tow prices.

U. K.'S COAL BOARD is replacing duct ventilators made of vinyl-coated jute, rayon and cotton with vinyl-coated Terylene in the nation's nationalized mines. Some 30 miles of the Terylene product in one and two-foot diameters were just ordered.

THE BRITISH ARE USING ENVELOPES made of nylon fabric and coated with polyvinyl chloride. First introduced by British Nylon Spinners, they are replacing less durable, less waterproof manila envelopes. They have zipper fasteners, address "windows", come in a half-dozen sizes and are reusable. A 9 by 13-inch costs about $2.15.

AUSTRIAN RAYON STAPLE output is running at a record level of 56,000 tons annually. Zellwolle Lenzing, the producer, exports some 12,000 tons to the U. S. Domestic use is up to 19,000 tons.

THE PHILIPPINES ARE PUSHING producers of abaca to raise output so that easier supplies may bring about more competitive prices. Vicente Mitra, manager of the country's Fiber Inspection Service, reported that in London and Japan, two traditional markets, users were switching to synthetics. The Manila Hemp Association of London has reported that "all other problems in the supply of Philippine abaca have been dwarfed by the big fall in production and the sharp rise in prices."

A SWISS FIRM has developed a new viscose fabric to protect farm products from damage by birds. The product, Agrolam, is made by Viscose Suisse of Emmenbrucke, near Lucerne, and exported by Dr. R. Maag, Ltd., Dielsdorf-Zurich. The sturdy veiling keeps the birds off fruits and vegetables, and the Swiss Ornithological Society says it doesn't hurt or trap them.

SWITZERLAND'S BIG CIBA chemical firm has received approval from Buenos Aires to invest $625,000 in Argentina for a textile auxiliary plant.

BARODA RAYON OF INDIA will receive a filament rayon plant, with a 6¼-ton daily capacity, from three Japanese textile machinery firms.

SIDNEY SCHEUER

diplomat and salesman

Climaxing two years of negotiations, a New York fabric marketer brought home from Moscow to American textile equipment makers an order for $20 million of their machines. Here is his story

By Jerome Campbell
EDITOR, MODERN TEXTILES MAGAZINE

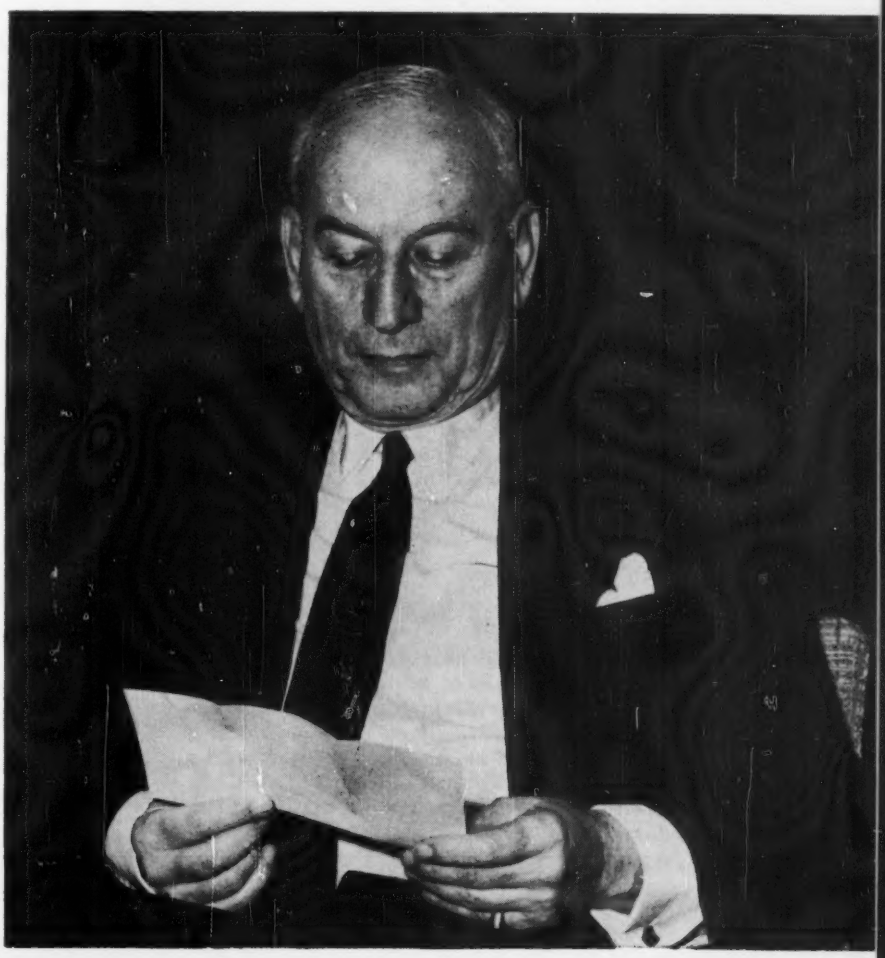
LATE IN DECEMBER, the United States textile machinery industry broke into the front pages of the country's newspapers when a dispatch from Moscow revealed that the Soviet Government had agreed to buy $20 million worth of American textile equipment. The contract was signed with Intertex International, a firm affiliated with Scheuer & Co. of New York, headed by Sidney H. Scheuer, a man of remarkable business ability who for many years has been an outstanding figure in the New York gray goods market.

For the twenty-odd companies who will supply the machinery to equip a completely integrated spinning, weaving and finishing plant of 50,000 spindles in Kalinin near Moscow, the contract negotiated by Scheuer and his associates represented a welcome bundle of orders thick enough to set their management men and shop workers dancing hand-in-hand in the streets.

For Sidney Scheuer, a business man whose vision reaches to horizons far beyond the world of getting and spending, the event was an occasion for cool satisfaction and a mild degree of reticent pride.

Scheuer's agreeable feelings were inspired not so much by the profit-earning aspects of the transaction as by its significance to him as a tangible and not inconsiderable step toward friendlier relations between the two countries, and therefore a contribution toward peace in the world.

Scheuer's satisfaction with the contract was underlined by the widespread approval that followed news of its signing. Letters from the foremost names among American textile manufacturers arrived congratulating him on his work. The consensus of approving opinion, despite some disagreement here and there among those who feel that Russia must be isolated economically, was expressed by an editorial in the New York Times which began with these words: "Both nations involved may welcome the news that the Soviet Union has signed a contract with American



Sidney H. Scheuer

business men for the construction of a major textile plant in that country. The Soviet people need more and better textiles, and American assistance toward attaining that end is a constructive contribution toward the welfare of a people with whom we have always wanted to be friends."

To understand the importance of the contract that Scheuer negotiated, it is necessary to look a little into the background. When Premier Khrushchev a few years ago announced that the Soviet Union would expand greatly its production of consumers' goods, it soon became evident that the new program included a big enlargement of Russia's textile industry.

Scheuer Sees Opportunity

At this point, Scheuer and his associates in Intertex became interested. Intertex for a number of years had been one of Scheuer's business interests, an outfit that dealt, in a large way, in the purchase and sale of second-hand textile machinery and plants, a business given great impetus in the United States during the past decade or two by the many mergers, consolidations, and liquidations that have taken place in a textile industry where fewer companies and machines are producing more and more fabrics.

To negotiate with the Russians in large and complex business matters was not new for Scheuer; in the overall complexities of dealing with foreign governments in difficult business matters, few men in the United States have had more experience than he. In 1942, impelled by his lively sense of duty to his country, Scheuer withdrew from his successful textile brokerage business to become executive director of the Foreign Economic Administration and executive vice president of the U. S. Commercial Company, also a government war agency.

In these posts he was in charge of the government's import and export program, including lend-lease, for military, civilian and strategic purposes. He was particularly concerned with the government's "preclusive buying" of such vital strategic materials as tin, manganese, wool, mica, cinchona, coffee and tea for the double purpose of securing such commodities for our war needs while shutting out the enemy from sources of supply.

Earlier Experience with Russians

In 1945, he visited Germany at the request of the Secretary of War to make recommendations for the rebuilding of that country's war-wrecked textile industry. One of his last acts on behalf of the war effort, the day before he left Washington to return to Scheuer & Co. as a private business man, was to conclude negotiations with Soviet representatives for the sale of lend-lease machinery and supplies as yet undelivered but in transit.

Thus, when Intertex International turned its efforts toward selling American textile machinery to the Soviet Union, Scheuer was a man uniquely fitted for the task. And the assignment was a formidable one. As Scheuer himself says, the ordinary skills of the salesman as practiced by Americans, and the salesman's ordinary outlook are of no help in dealing with the Russians. One must, he says, proceed on the level of international diplomacy; one must understand the complexities of the bureaucracy that operates Soviet industry; and one must be wise in the ways of the Kremlin.

To make a beginning, Intertex several years ago was host to a group of Russian technical experts who toured this country visiting textile machine plants and many large mills. Details of the tour were carefully worked out by Intertex with clearance by the State Department down to the selection of three interpreters taken from an official State Department roster but working for and paid by Intertex.

Results Came Fast

Considering the complexities of the task, the fact that the Russians are hard bargainers, and the need to work closely with the requirements of American foreign policy as enforced by the State and Commerce Departments, Intertex's sales effort was speedily fruitful. In 1957, the first actual business was booked in the form of orders for several bleaching ranges. This was followed by the sale of a 15,000 spindle worsted spinning plant; three pile fabric knitting plants each with a nucleus of 20 pile knitters, and then a tufted carpet plant complete with machinery for spinning yarns and weaving flax backing cloth.

In April 1958, negotiations were begun with visiting Russian engineers for the deal concluded in December. The contract for a total of $20 million for textile machinery is with Intertex International as prime contractor and not, as reported in some newspaper accounts with a "consortium" of American machinery manufacturers. Under the arrangements, the American machinery makers, numbering about 20, have contracted with Intertex to supply the machinery wanted by the Russians. In other words, Intertex is the prime contractor with Techmashimport, the Soviet government agency buying the machinery.

Signed in Moscow

Among the companies participating are Crompton & Knowles, James Hunter, Whitin Machine, Rodney Hunt, National Drying Machine, Cocker Machine & Foundry, Saco-Lowell, Turbo Machine, Parks-Cramer, and H. W. Butterworth. In negotiating the contract, Scheuer was assisted by Intertex vice presidents Norman Garlington and T. D. Lewis, Jr. The contract was signed in Moscow for Intertex by Saul Rosenbaum, president of Intertex, and by Garlington.

The man who brought to successful completion this substantial and complicated textile machinery transaction with the Russians has had a unique and distinguished career in the American textile industry. Sidney Henry Scheuer, born in New York City in 1893, is the son of a small lace curtain jobber. He left Townsend Harris High School after a year or two to earn his own living. As an office boy he worked first for a varnish maker, and then for the Manhattan Shirt Co.

With the tough-mindedness and sharp sense of business opportunity that have been abundantly evident in his long career, he decided at the age of 20 that textiles was a field where he might do well. He applied for a job in the fabric selling house of Louis Lowinson on Leonard Street. To induce his prospective employer to make a place for him, he volunteered to work for nothing a week until he knew enough about the business to impel Lowinson to pay him. By the end of three months Lowinson, sensing that fate had brought into his establishment an unusually able young man, put Scheuer on the payroll at $10 a week.

(Continued on Page 47)

New SANDOZ Foron® dyes up-grade fastness on polyester fibers

For an outstanding improvement in color fastness on polyester fibers, try the new SANDOZ Foron ultra-disperse dyes. Popular shades on these fibers can be matched now with available Foron dyes, and new dyes are being added rapidly.

SANDOZ Foron dyes have high affinity for polyester fibers in dyeing and printing, and provide excellent light fastness, wet fastness, and resistance to abrasion.

Recommended for coloring 100% polyester fibers, blends of polyesters with cotton or viscose rayon, and blends of polyester and wool. For a complete exposition of what these new dyes can do for you, call in a SANDOZ representative.

SANDOZ, INC., 61-63 Van Dam Street, New York 13, New York. ALgonquin 5-1700.

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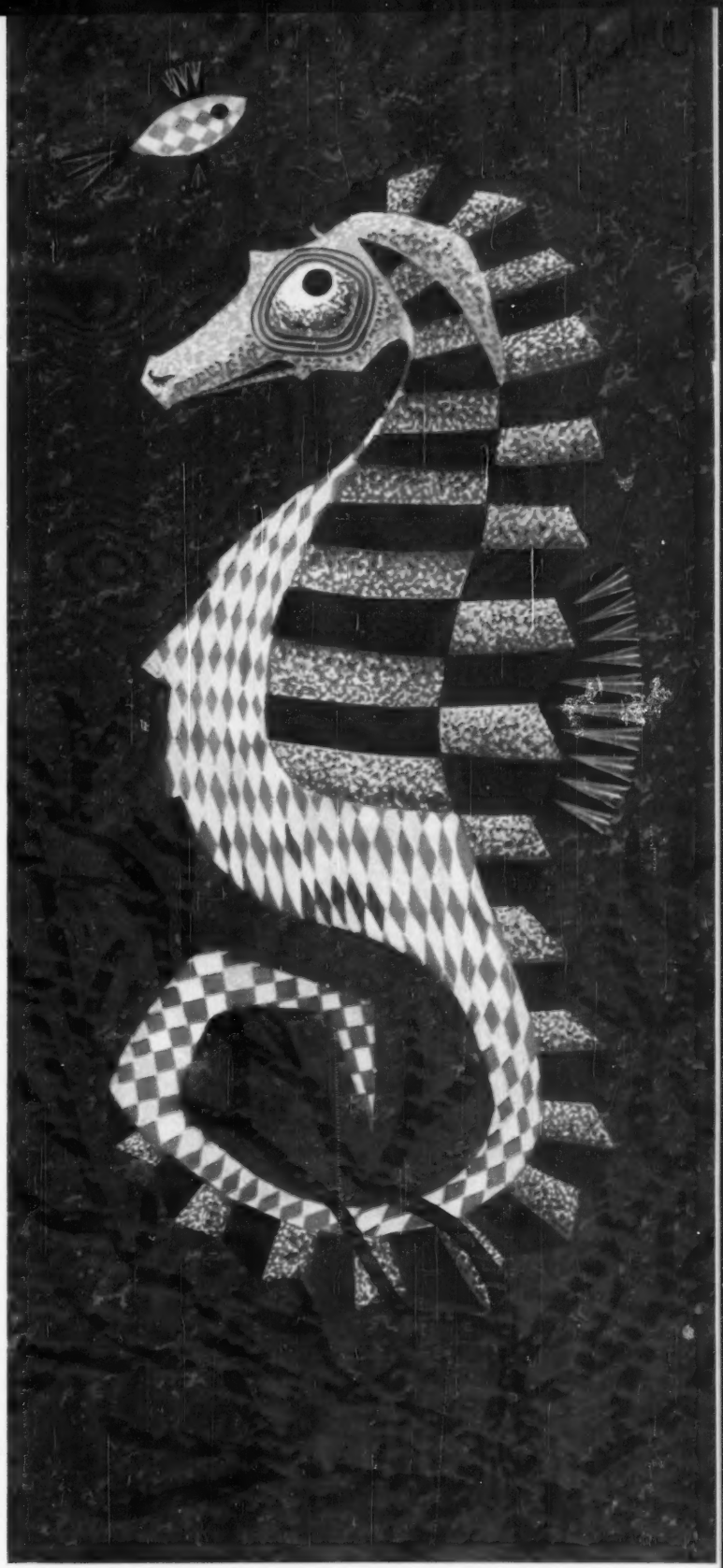
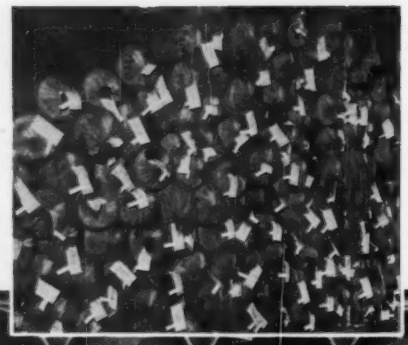


SANDOZ

THINKS AHEAD WITH TEXTILES

SANDOZ



Solve fabric storage problems . . .

DENISON COTTON MILL COMPANY

MANUFACTURERS OF COTTON DUCKS

DENISON, TEXAS

April 13, 1959

Sonoco Products Company
Longview, Texas

Gentlemen:

We are most pleased with our new Sonoco storage tubes and I know you will be happy to hear how these have helped us.

We find after six months of constant use that these fine tubes leave reduced space needed for storage, simplified inventory control, speeded order handling, protection (keeps stock clean). In addition, we find stock clerks very enthusiastic over ease of handling, efficiency in storing.

We would be glad to have you tell others of our good experience with these fine products.

Sincerely,

DENISON COTTON MILL COMPANY

W. D. Munson III, President

WDM:at

Low cost method saves time!

Sonoco Storage Tubes provide convenient unit storage of roll fabrics to save handling time, installation costs and storage space.

The Sonoco Storage Tube method protects fabric from pile crush. It also permits efficient inventory control. Installations can be easily expanded or moved.

Costing far less per unit than wood or metal racks, Sonoco Storage Tubes are available for prompt delivery in any quantity in diameters up to 36″ I.D. and in lengths to meet your needs. Sonoco textile sales engineers have complete information on this product—or, write our nearest plant office.

SONOCO

Storage Tubes

SONOCO PRODUCTS COMPANY

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Mystic, Conn.
LaPuente, Cal.
Fremont, Cal.
Lowell, Mass.
Longview, Texas
Akron, Ind.
Phillipsburg, N. J.
Philadelphia, Pa.
Atlanta, Ga.
Brantford, Ontario
Granby, Quebec
Mexico, D. F

756

A new series for mill managers

4 Determining Task Frequencies

By Thomas F. O'Connor

ONCE the average unit time has been determined for each task, we need to find the frequency of occurrence of each task per machine running hour (mrh). Many frequencies can be calculated, as shown for quill changes in weaving, below:

Given: 40's cotton yarn, 32-inch cloth width, 0.05 lb. quill weight, 125 picks/minute loom speed.

Calculations:

1. Yards on quill = 0.05 × 40 × 840 = 1680.
2. Picks per mrh = 125 × 60 = 7500.
3. Yards of yarn per mrh = 7500 × 32 ÷ 36 = 6667.
4. Quills used per mrh = 6667 ÷ 1680 = 3.97

Item 4 of the calculations thus yields the quills used per machine running hour, representing the frequency of quill changes for this operation. In practice, corrections may be required to adjust this frequency value for deviations in yarn count, lost yardage, cloth contraction, and similar factors. The corrected figure then represents the frequency of quill change.

Events occurring at random. such as breaks, cannot be calculated from engineering data. They must be observed and counted over a period of time, to obtain the average frequency of occurrence. Then it may be assumed that the system of chance causes will continue to operate in the same manner, until checks reveal a change in the level of occurrences. In obtaining the frequency levels of random events, the following three steps are involved:

1. Find how often the event occurred in a certain time period. This may be accomplished by placing a frequency chart on each machine, such as the loom, on which the number of occurrences of various types of stops may be recorded as they are observed.

2. The same chart should provide space for recording production, such as picks produced during the shift. Occasional spot checks should be made, to ascertain that roll speeds, picks per minute, or other production speeds are on standard during the observation period. By dividing production, such as picks per shift, by the machine speed, such as picks per hour, the mrh value is obtained.

3. The frequency of a task is now found by dividing the total stoppages per period by the total mrh for that same period. The complete record chart, showing the mrh obtained for various tasks, is illustrated in Figure 3.

The unit times may next be entered on a summary sheet as shown in Figure 4 where they are totaled and averaged. On the same summary sheet are entered also the numbers of the various sorts of stop on the various looms, and the final frequencies are deduced. Do not enter the trial values of the frequencies from Figure 3; discard these as they have served their purpose.

(Continued on Page 30)

STOPPAGE FREQUENCY.

Loom C&K W-3 #44 Warp 40/2
Ppi 30 Fill 30/1

A. Number of Stops.

Task No. / Date / Shift	6.16.59 7-3	6-16-59 3-11	6-16-59 11-7.	6.17.59. 7-3.		Total Stoppages
1. Warp front	𝍸 𝍸 𝍸 𝍸	𝍸 𝍸 𝍸 𝍸 𝍸	𝍸 𝍸 𝍸 𝍸 1	𝍸 𝍸 𝍸 𝍸		86
2. Warp Rear	etc					70
3. Filling Break	etc					55
4. Mechanical	etc					17
5. Clear Warp	etc					5.

B. Number of mrh.

1. Ppm	120/122	118/119				Total Machine Running Hours.
2. Average	121	118.5.				
3. P. per hour	7260					
4. Picks at end	037186					
5. P. at start	984080					
6. Net Picks	53,106					
7. MRH	7.33	etc	etc	etc		56.5.

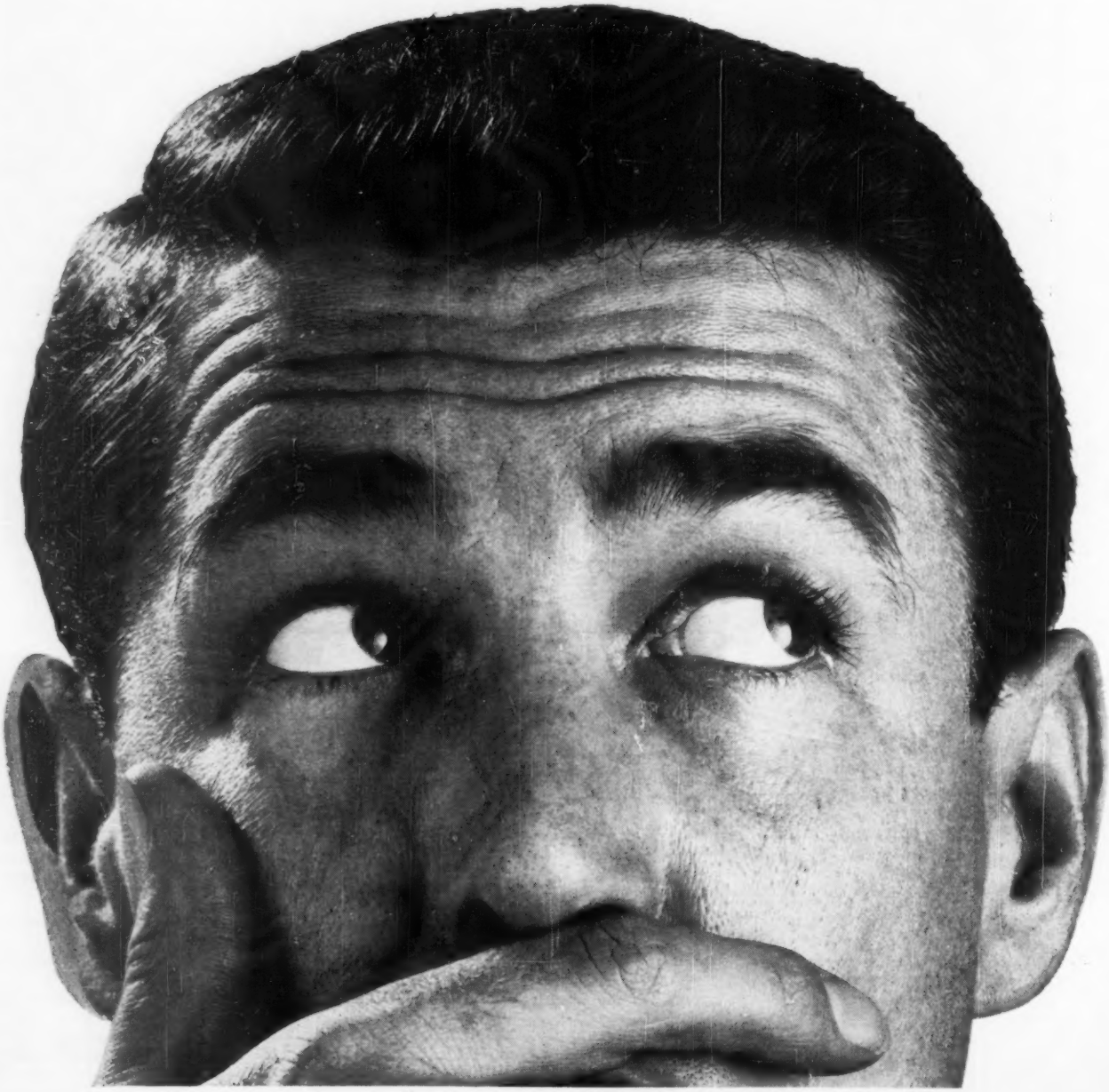
C. Frequency.

1. Task No.	1.	2.	3.	4.	5.
2. Description	Warp front	warp rear	Fill break	Mechanical	Clear Warp
3. Total Stops	86	70	55	17	5
4. Frequency per mrh.	1.525	1.240	0.975	0.300.	0.0885.

Figure 3. Frequency Calculation.
Note 1. Only essential figures are given.
Note 2. The frequency shown in the last line is not final. (See Figure 4).

Have you seen all these new ideas in fibers?

Just in case you missed one of the successful new products and processes Du Pont has developed in the past 18 months, we've rounded them up for you in one complete list. Already, many mills are profiting from these developments:



"DACRON"* POLYESTER FIBER—*Type 64* — Dyeable, pill-resistant staple. For worsted-type fabrics such as winter-weight suitings. *Bonded fiberfill batting*—Minimizes fiber leakage of battings in insulated clothing. *Stabilization of warp yarns*—Infrared heating cuts costs, improves uniformity. *Type 61*—High shrinkage staple for industrial uses. *Type 62*—Modified cross-section filament with improved hand and luster, more versatile dyeing and styling for apparel. *Fiberfill batting for furniture*—Greater comfort, ease of care and more durable resilience.

DU PONT NYLON—*New hosiery deniers* —More style flexibility for hosiery. *Du Pont Sparkling Nylon*—Trilobal monofilament yarn used in knitting sparkling nylon hosiery. *Du Pont 420 nylon*—Adds extra wear to cotton denims, twills and sateens. *Type 501 continuous-filament carpet yarn*—High bulk, less fuzzing and pilling, better soil resistance and styling. *Type 707* —Cordage yarn with greater wet and dry strength. *Low-shrinkage drawwound yarns*—Give broad-woven fabrics more uniform dyeing. Better control of fabric width. *Type 280*—Semi-dull continuous filament. For automotive fabrics. *Type 560*—Continuous-filament yarn with trilobal cross section gives improved hand, luster, cover and printability. For lingerie, dresses, blouses. *Improved 30-denier dull*—Better dye uniformity, lower abrasiveness. *Tissue tricot*—Adaption of Schreiner calendering to nylon tricot gives beautiful hand, better cover, lighter weight. For lingerie, sleepwear.

"ORLON"* ACRYLIC FIBER—*"Orlon" 21*—Premium staple. Improved cover, elasticity, resilience, glaze resistance. For bulky knitwear. *Type 25 staple*—For cotton and rayon spinning systems. Superior whiteness and processing. *Type 38 tow*—For two-height pile coating, lining fabrics. *"Orlon Cantrece"**—Semi-dull filament yarn with a rich, luxurious look and feel.

"ACELE"* ACETATE—*40-denier yarn* —Fine denier for 32-gauge tricot.

DU PONT RAYON *"Ondelette"**—Continuous-filament yarn with random-slub effect, high luster. For dresses and blouses, suitings and draperies. *"Civona"**—Straw-like effect. Extra durability. Heavier deniers for millinery style effect. *"Super Cordura"* Type 272-F*—High tentacity industrial yarn for belts and hoses. *Tinselfil* —High luster, sparkle in a fashion yarn.

"LYCRA"* SPANDEX FIBER—Elastic properties. Makes possible uniquely lightweight elastic apparel—foundation garments, surgical hosiery, etc.

. . . And, in the months ahead, we'll be developing more new products and processes. All of them will mean more profits for customers. That's one of the main reasons it pays to do business with Du Pont.

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*DU PONT TRADEMARK

Task Frequencies

(Continued from Page 27)

The third part of the summary sheet shows how each component of t is obtained by multiplying together unit times and frequencies. t is finally the sum of the components. It is the time that an operator would spend on average per mrh on work which should not be deferred if the way is clear—work on the stopped machine. It amounts in the given example to 251.42 hundredths of a minute, and this is rounded off to the next whole number, 252, or 2.52 minutes per mrh.

This and the preceding article* have described in detail how the main part (t) of the operator's duties would be obtained. Each of the other parts—t_1, t_2, etc.—would be obtained in the same manner—first unit times, then frequencies, then the combination. When all parts have been evaluated, the way is open for the calculation of the cycle ratio, p, which is the key to the Tables. The calulation of p and the use of the Tables will be illustrated in the next article of the series.

* Dec. '58 issue, p. 54.

SUMMARY SHEET.

Loom C&K W-3. Warp 40/2
Ppi 30 Fill 30/1

A. Unit Times

Task no.	1		2		3		4		5	
Weaver	Time	No.	Time	No.	Time	No.	Time	No.	Time	No.
Carmichael	1290	30	2772	28	1290	29	660	21	2060	20
Panagakis	etc		990	10	etc					
Thumper		etc	2280	24		etc				
Kirilenko			1410	15						
Sullivan			2970	31						
			1960	19						
Totals	5340	120	12,382	127	etc		etc			
Averages	44.5		97.5		43.0		32.5		101.	

B. Frequencies.

Loom No.	MRH	Number of stops for task no. 1	2	3	4	5
44	56.5	86	70	55	17	5
45	etc	etc	etc			
46						
47						
Totals	656	1020	826	625	190	59
Frequencies per mrh.		1.56	1.26	0.955	0.29	0.09.

C. Time per MRH.

Task no.	1	2	3	4	5
Unit Time	44.5	97.5	43.0	32.5	101
Frequency	1.56	1.26	0.955	0.29	0.09
Time per MRH.	69.4	122.5	41.0	9.43	9.09.

TOTAL = t = 251.42, say 2.52 min per mrh.

Figure 4. Summarizing the Results.

Dacron Texturing Process

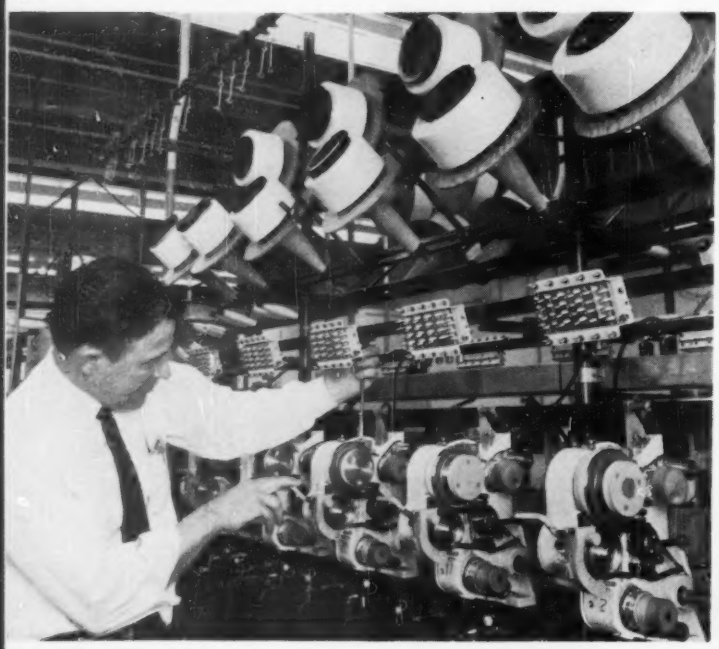
Deering Milliken Research Corp. reports Dacron filaments can be textured and developed with complete uniformity with equipment constructed by Hobourn Aero Components, Ltd., precision machinery manufacturer of Rochester, England. Deering Milliken said the process to texture nylon filaments into Agilon yarns has been applied successfully to the polyester filaments. The special controls in the texturing equipment can provide in textured Dacron yarns the quality and uniformity of Agilon nylon yarns which have been proved in hosiery and tricot fabrics, according to Russell B. Newton, president of the research firm.

Sales, service and warehouse operations for the Hobourn equipment, which can be used for nylon or Dacron filaments, have been set up in the United States.

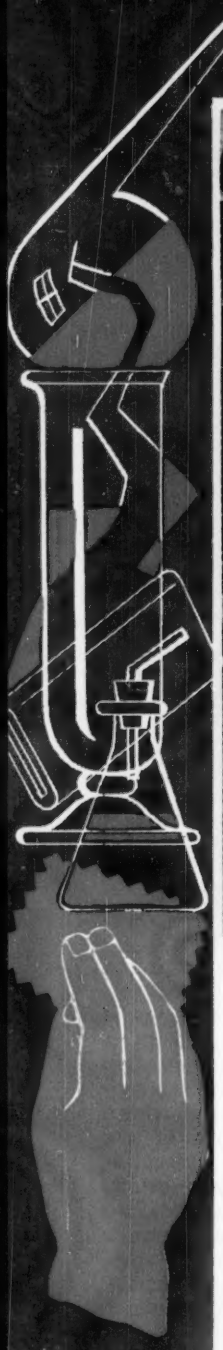
Milliken Research does not engage in the manufacture of any of the products which it develops but licenses manufacturers throughout the world. More than two dozen licenses to make Agilon yarns have been granted U.S. manufacturers.

Royalty schedules for conventional Agilon yarns of nylon or Dacron are now set at $3 a pound for filaments of 6 to 13 deniers; $2 a pound for 14 to 17 deniers, and 4% of the price of raw materials in the U.S. for all deniers higher than 17.

Agilon yarns are produced by passing heated filaments over a dulled blade to impart crimp, providing softness and controlled bulk to the yarn while leaving unchanged such properties as dye affinity.



TEXTURIZING DACRON—Edge-Crimping units in a pilot plant at Deering Milliken Research Corp. W. J. Schroeder, engineer in the Agilon yarn division, supervises the start-up.



BLEACHING
PRINTING
SPECIAL
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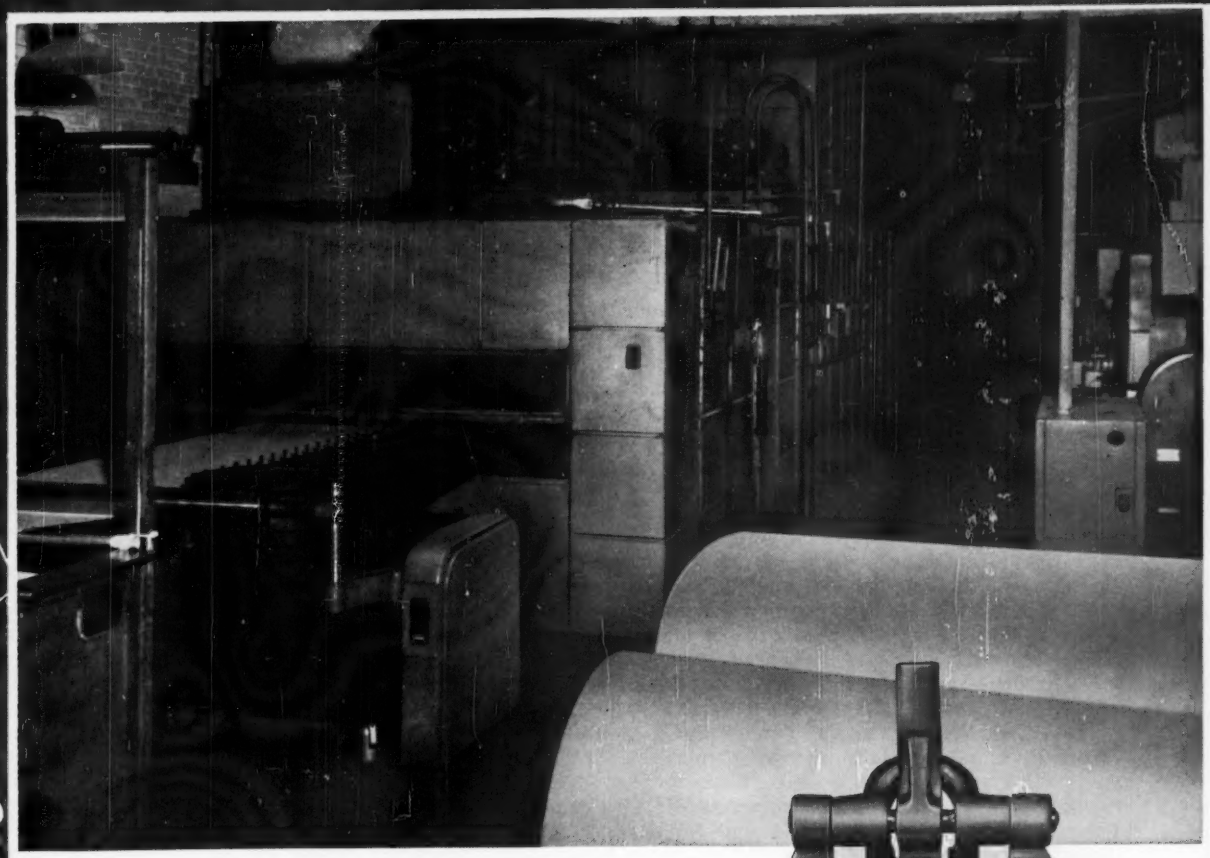
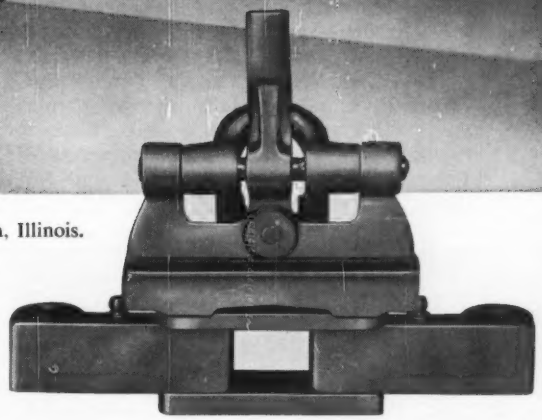


Butterworth Tenter Range at Aurora Bleachery, Inc., Aurora, Illinois.



Latest design Butterworth #45 Tenter Link has a malleable iron nipper with self-aligning, stainless steel insert and shoe.

Links that wouldn't wear out...

Aurora Bleachery installed a Butterworth Tenter Range in 1945. Here's what E. T. Gurry, President, said 14 years later:

"This Tenter Range, which handles cloth from the white bins to the winder, operates at 150 yards per minute average speed, ten hours a day, five days a week.

"You told us in 1945 that we could expect longer service from your Tenter Links because of the new hardened steel construction and precision ground surfaces. How right you were! After 14 years, there is no apparent wear on the Tenter Links.

"The removable top, which I understand was pioneered by Butterworth, is another important feature. By removing a single bolt, the operator can lift the top section without removing the base of the chain. This not only saves maintenance time but gets the range operating very quickly when a top section needs changing during operations . . . Butterworth Tenter Links run smoothly and quietly at high speeds, and the service life is exceptional."

Aurora found it pays to put Butterworth in their machinery plans, and so will you.

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In the North: United States Supply Co., East Providence, R. I.

Printing on tufted carpets

New British machine said to print up to eight colors with excellent results at low cost

By G. J. Bradley

A CARPET printing unit developed by the Bradford Dyers' Association Ltd. will print the most intricate designs in up to eight colors on tufted carpets for as little as 60 cents per square yard.

So confident are B. D. A. of the success of the machine that they have formed a new company, Carpet Printers Ltd. at Prestwich, Lancashire, to print tufteds on a commission basis. They have already printed ranges for at least 17 leading tufters and these ranges are due on the British consumer market within the next couple of months.

At the moment only one unit is in actual commercial operation. This handles carpeting up to 54 inches wide. But a machine capable of printing broadloom carpeting up to 12 feet wide is being built.

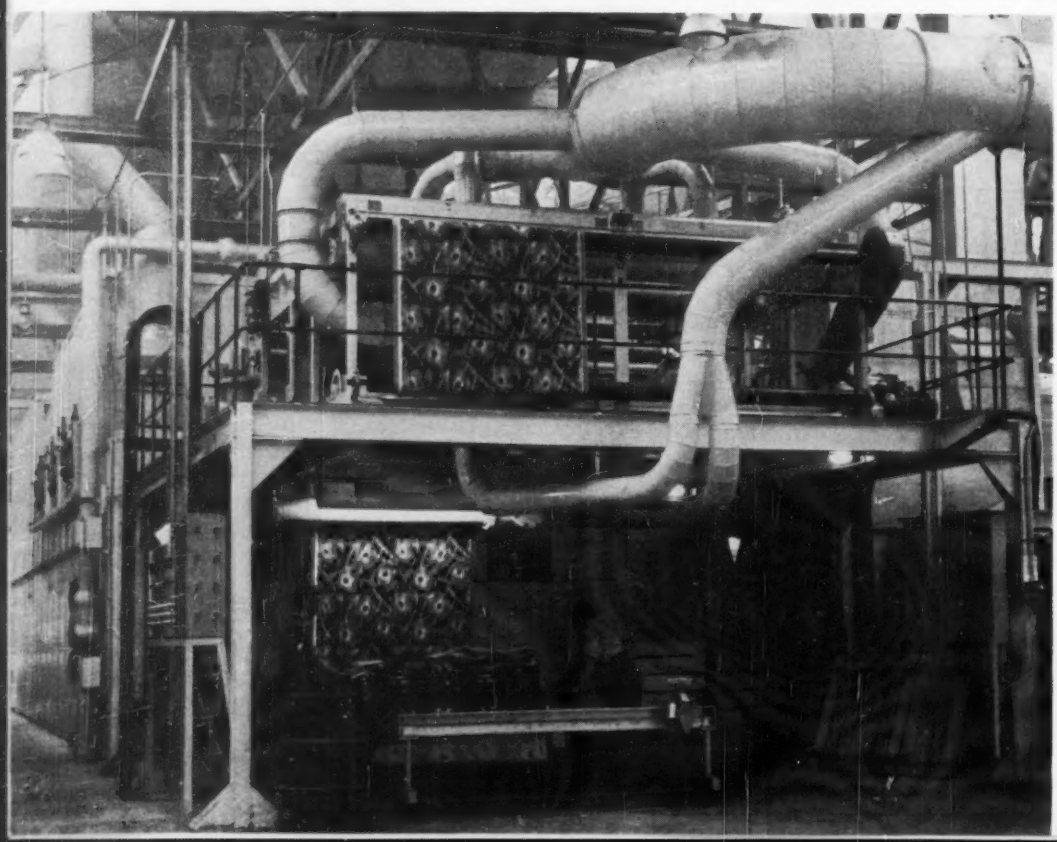
No precise details about the printing technique are yet available. In its own plant, the company has the actual printing unit screened off from the view of most of their own workers, and this state of affairs will probably continue until the patent situation has been settled. Nevertheless, the fact that the necessary printing elements to produce an eight color design cost only about $300 suggests that the method could be based on a screen printing principle. (The company says that the printing element for a one-color design can cost as low as $60.)

The straightforward silk screening method was tried by one British tufted carpet manufacturer about two years ago. He found the main drawback was the time taken in moving the carpet through the printing process. It is reported that in the B. D. A. process, which may incorporate some rotary screen device, the dye is fed by a suction system.

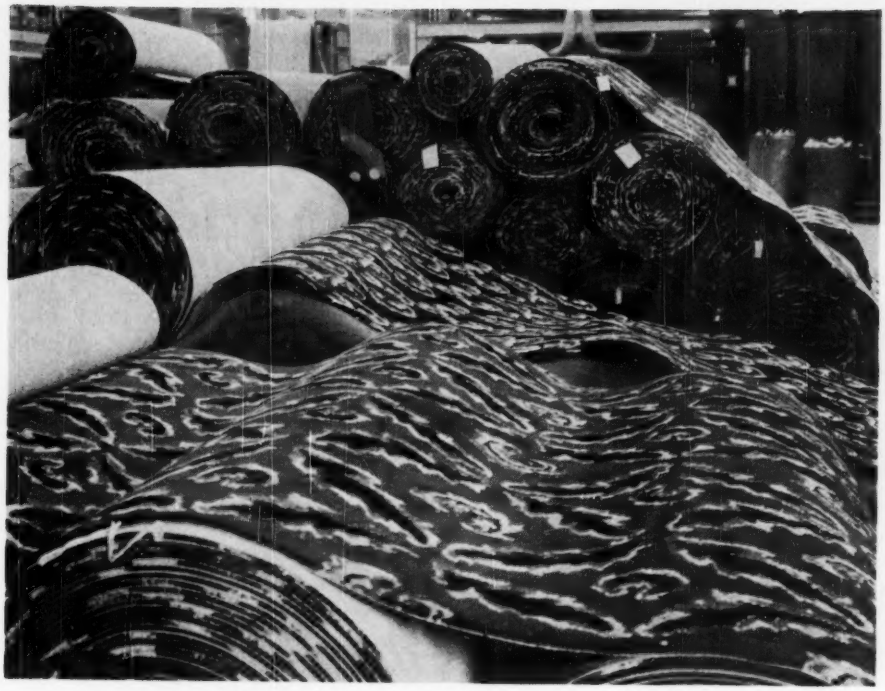
B. D. A. has been experimenting for four years to discover a commercially efficient method of printing tufted carpets. At one time they carried out extensive trials with the Portugese Aljaba fabric printing machine, and have also tested at least one British unit, before developing and building a machine which incorporates their own method.

The tufted carpet is received from the tufters in an unbacked condition. The first stage in the processing is the actual printing. The tufted carpet can be patterned with designs in repeats of up to 18 inches. For convenience, these designs are often 27 inches wide so that the carpeting can be split down the middle if necessary. After printing, the carpet is backed on a conventional lick-roller machine and the backing is cured in a huge hot air oven. On leaving the oven it is trimmed. Greater than usual care has to be taken in the trimming operation to ensure that the carpet design can be matched up precisely.

Samples of the printed carpeting show that register of even eight colors is good, and penetration of the dyestuffs is satisfactory right down to the base of the tufts. Although cellulose reactive dyestuffs such as the Procions are not used owing to the need to keep costing as low as possible, the dyestuffs which are employed give color fastness comparable to that offered by any other type of carpet at present on the market.



COLOR BY THE YARD— After printing, tufted carpet fabrics pass through this large drying machine at the plant of Carpet Printers Ltd., Prestwich, England



BIG BUNDLES—After inspection, the printed tufted carpets are re-rolled and prepared for shipment

The range of designs which can be produced covers almost all types of traditional and contemporary designs. The tufter can either supply his own exclusive design, in which case he pays the cost of making the necessary patterning device; or he can have his carpeting printed with standard designs produced by Carpet Printers Ltd.; in the latter case he does not have to pay anything towards the cost of the patterning device.

The only section of the tufted trade which is not expected to be optimistic about this new printing process is the piece-dyeing trade. In Britain, costing for commission piece-dyeing is done on a price per pound of dry carpet basis; a usual price being in the region of 11 cents per lb. With an average quality tufted carpet this works out to be about 25 cents per square yard. At the moment the bulk of self-colored tufted carpets made in Britain are piece dyed.

A design printed by this new machine in eight colors and selected from Carpet Printers Ltd's standard range would cost about 45 cents per square yard. Even the added initial cost of having an exclusive design printed would not boost this cost per square yard to a point where it was very much above that of a piece-dyed carpet.

One big difference between a printed carpet and a woven design carpet is found in the definition of the design. The printed carpet design has a more precise outline; in the woven pattern the edges of the design are stepped, owing to the weave. Just how far this will affect consumer acceptance is hard to say, but initial reports from leading carpet buyers throughout the country do not reflect any dismay about this greater definition of design and it could be turned into an added selling point.

The inventor of the unit, T. L. Leckie, now a director of the new B. D. A. subsidiary, claims his machine can print other types of pile fabrics, even if they have a pile height greater than that normally used in carpets. A spokesman for Carpet Printers Ltd. states that already seven applications have been received from U. S. companies to use the new printing process under license. *For further information write the editors.*

TAKE YOUR CHOICE—This spread of samples indicates the range of patterns possible with the new machine for printing tufted carpet fabrics

IMPROVEMENTS in Dacron Carding

Metallic wire, granular conversion units yield increased output without impairment of quality

By T. G. Clayton
THE DU PONT CO.

TWO RECENT carding developments appear to have application in processing of fine denier Du Pont Dacron polyester fiber staple. They are:

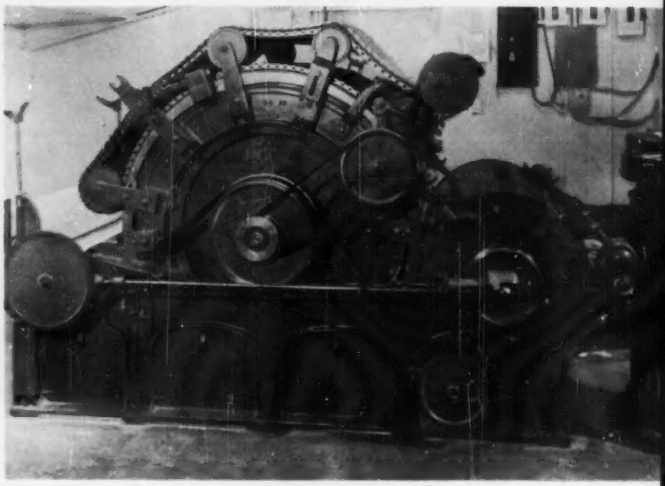
1. The use of metallic wire on the doffer and cylinder of a conventional flat top card.
2. The use of a granular conversion unit (in place of the conventional flats) in conjunction with metallic wire on the doffer and cylinder.

The use of metallic wire, of itself, results in elimination of the fancy roll and its associated maintenance. Cylinder and doffer wastes are eliminated, and down time attributable to grinding of the cylinder and doffer is virtually eliminated.

The granular card clothed with metallic wire on the doffer and cylinder results, practically speaking, in elimination of all card wastes. This report covers the results of laboratory studies of the carding performance of 1.5 denier one and one-half inch Dacron staple on a conventional flat top card clothed with metallic wire and on a granular card clothed with metallic wire.

Since the introduction of Dacron polyester staple for blending with cotton (65% Dacron, 35% combed cotton), the use of a fancy roll has been prerequisite for satisfactory carding of 1.5 denier, one and one-half inch Type 54 staple. The adverse effect that the fancy roll has on wear life of conventional fillet wire card clothing has long been recognized. The benefits derived from its use, however, have more than overshadowed the disadvantages, such as increased card maintenance.

Several years ago, metallic clothing for cylinders and doffers was introduced to textile mills for the carding of cotton and synthetics on the cotton system.



Modern flat card

Initial reaction to metallic clothing was mixed, as is usually the case with a new development. Continuing development, however, has resulted in improvements and refinements which have culminated in acceptance of the metallic wire approach to cotton system carding.

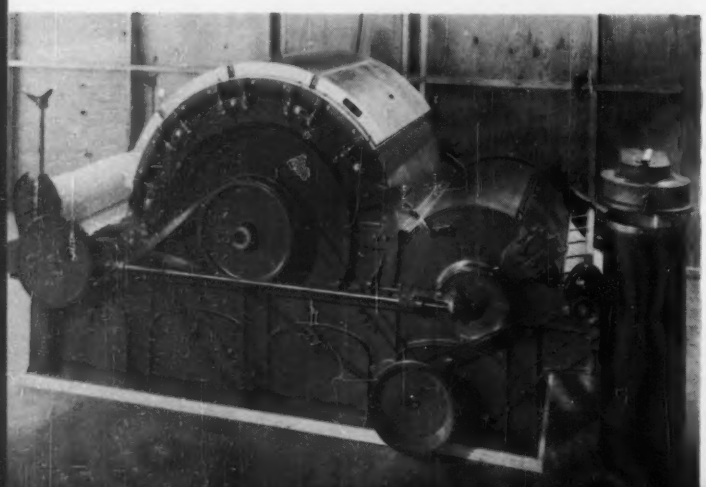
Many mills have already adopted metallic wire on a replacement basis and more are in the process of evaluating it. The advantages claimed for metallic wire are as follows:

1. Elimination of cylinder and doffer strips.
2. Elimination of need for grinding cylinder and doffer, resulting in greatly reduced card maintenance.
3. Improved quality—fewer neps.
4. Increased production rate at existing level of quality.

It has been claimed also that a typical cotton mill can save, through reduction in wastes, one bale of cotton per card per year through the use of metallic wire on the doffer and cylinder.

Since blends of Du Pont Dacron polyester fiber and cotton are most often made in mills producing combed cotton yarns and fabrics, and these mills find the use of metallic wire attractive from a quality and economics standpoint, it was obvious that the feasibility of carding fine denier (1.5 denier) Dacron staple on this type of clothing should be ascertained.

(Continued on Page 36)



Card equipped with granular conversion

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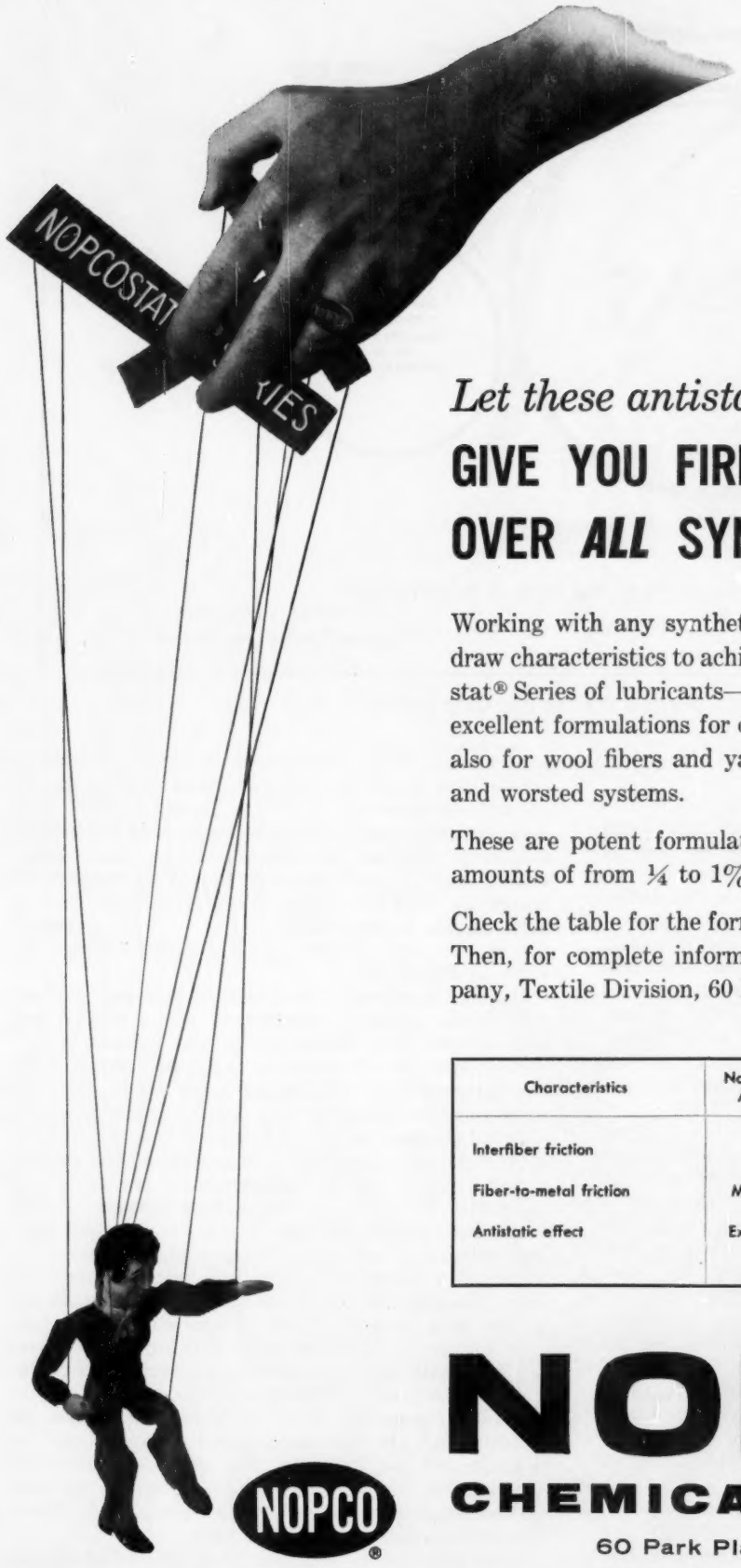

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These are potent formulations, achieving desired results with amounts of from ¼ to 1% owf.

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Characteristics	Nopcostat AS-40	Nopcostat LV-40	Nopcostat 2152-P	Nopcostat 2152-X
Interfiber friction	Low	Medium	High	High
Fiber-to-metal friction	Medium	Medium	Low	Low
Antistatic effect	Excellent	Excellent	Excellent	Excellent

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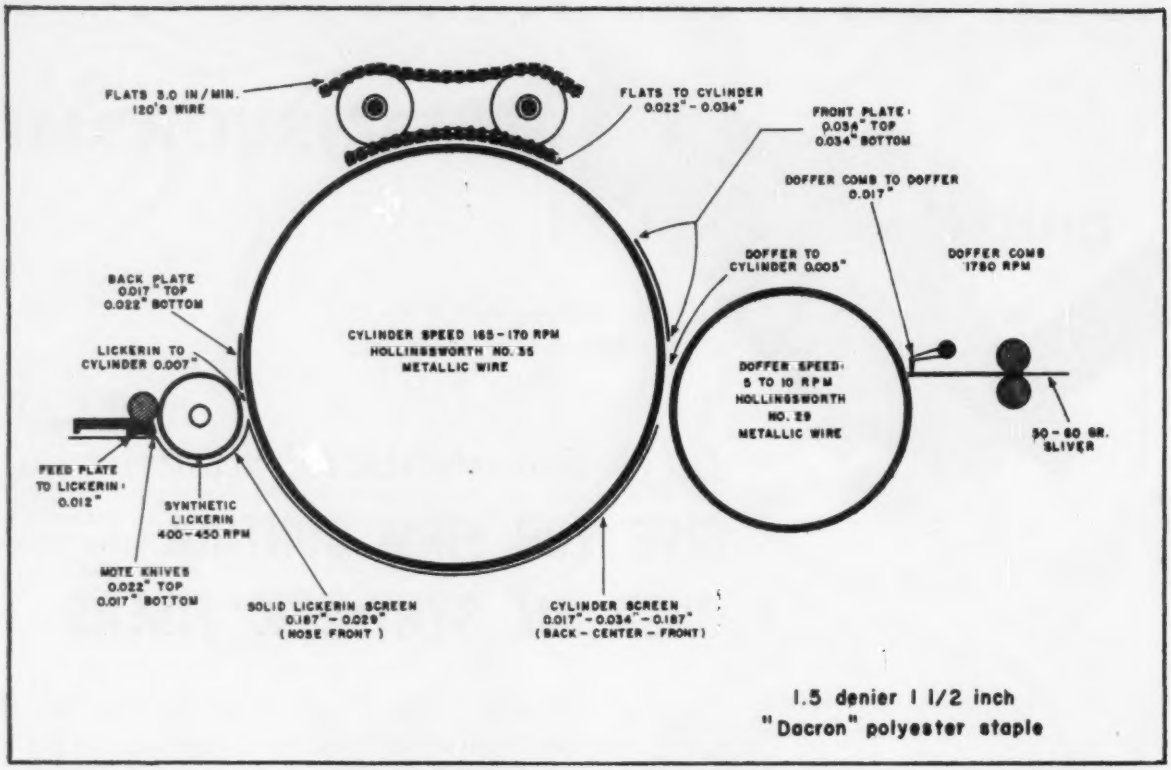

Figure I—Diagram showing Flat Card Settings.

Dacron Carding

(Continued from Page 34)

The results of a cooperative evaluation with John D. Hollingsworth Co. showed that 1.5 denier Dacron staple can be carded on a commercial basis on flat top cards equipped with metallic wire on the doffer and cylinder. Specifically, Hollingsworth's No. 29 and No. 35 wire (cotton type) on the doffer and cylinder, respectively, were used in this evaluation. With one exception, cotton settings were found to be optimum for carding 1.5 denier Dacron staple. The recommended flat setting for carding cotton is 0.010 inches, whereas optimum carding of Dacron staple resulted with flat settings ranging from 0.022 inches to 0.034 inches.

It is of interest that the nep count in card sliver at the 0.034 inch setting was one-third as high as the nep count of sliver carded at the 0.022 inch flat setting. The quality of card webs and sliver at a production rate of 10 rounds per hour was equivalent to that attainable at six to seven pounds per hour on fillet wire with a fancy roll.

The advantages of carding 1.5 denier Dacron polyester staple on metallic wire are readily apparent. The need for a fancy roll is eliminated and so are the maintenance problems associated with it. Carding capacity is effectively increased 30 to 50%. Card wastes are reduced since doffer and cylinder strips are eliminated. Flat strips are the only waste produced at carding, and the majority of mills rework this waste with virgin Dacron staple.

It should be emphasized that to obtain optimum carding with metallic wire, precise settings are necessary. Doffer-to-cylinder and lickerin-to-cylinder tolerances should not exceed plus or minus 0.001 inches when these settings are 0.005 inches and 0.007 inches respectively. Tolerances in excess of plus or minus 0.001 inches will result in band or strip loading of the cylinder or lickerin. Cards clothed with metallic wire should otherwise be in good mechanical condition. Where necessary, cylinder and doffer shafts, journals, and bearings should be replaced to permit the close tolerances. In short, optimum carding performance is dependent on the mechanical condition of the card. Complete and detailed settings are given in Figure I.

During the course of this study, a high spot evaluation of the carding performance of 1.5 denier, one and one-half inch Dacron staple was made on a card clothed with metallic wire on the doffer and cylinder and incorporating a granular conversion unit. The latter was developed by the Southern Regional Research Laboratories of the United States Department of Agriculture. A stationary granular carding surface is substituted for the conventional revolving flat assembly. The granular conversion consists of four 15x42 inch top plates made of aluminum alloy castings which are covered with a granular surface composed of a coated fabric with a pressure sensitive back. The granular top plates are rigidly mounted and are set in a manner similar to conventional flat bars (see Figure II). The granular carding surface does not load with fiber and therefore requires no cleaning or attention. A "pre-opener" is included in the granular conversion unit. It is located above the lickerin and provides carding action with both the lickerin and the cylinder. The granular conversion unit used in this trial was manufactured by the John D. Hollingsworth Co. under license of the United States Department of Agriculture.

Card web quality was equivalent to that attainable with a conventional flat assembly at a comparable

(Continued on Page 38)

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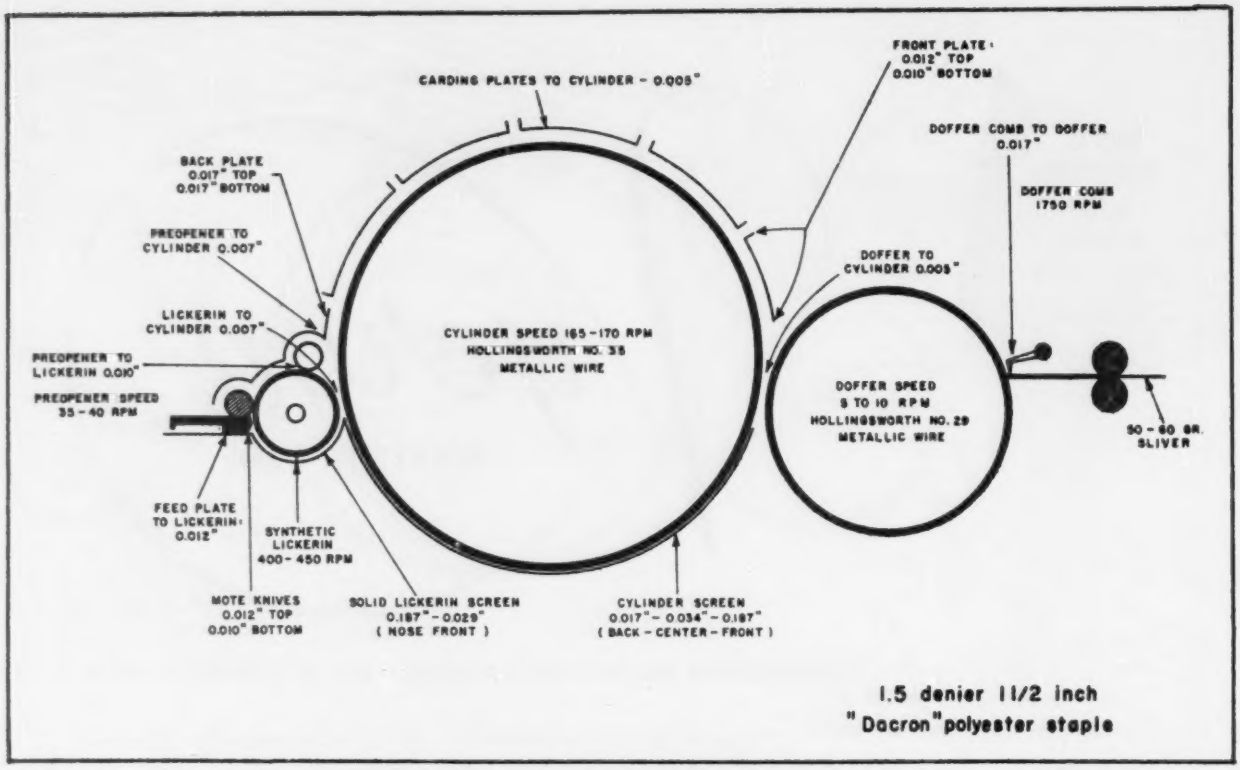


Figure II—Diagram showing Granular Card Settings

Dacron Carding

(Continued from Page 36)

production rate (8.5 revolutions per minute of doffer delivering 55 grain sliver). Comparative nep counts (neps per 25 grains of card sliver) which include pinpoints were as follows:

Top Setting	Nep Count
Flat Card . . . 0.022 inches	612
. . . 0.034 inches	262
Granular Card 0.005 inches	275

The granular conversion unit, in conjunction with metallic clothing, appears to offer a significant advantage in that the combination results in elimination of all card waste. The potential of the granular conversion unit seems greater for synthetic fibers than for cotton. Since synthetic staple fibers such as Du Pont Dacron polyester fibers are free of foreign material and are uniform in length, it seems pointless to produce flat strip waste, reworkable though it is.

Evaluation of the granular conversion unit was admittedly of limited duration; consequently, the efficiency of the granular surface during continuous and prolonged use is unknown. It has been estimated that in its application to cotton, the granular surface will require replacement (at nominal cost) after six months of use. In any event, the application of this technique to carding of synthetic staple fibers has intriguing possibilities. Complete settings are given in Figure II.

In summary, it has been demonstrated that metallic wire offers immediate advantages in quality and economy to mills producing blends of Dacron and cotton. The relatively minor differences in card settings required between Dacron and cotton offer flexibility in the cardroom which, heretofore, has not been possible. Installation and maintenance of fancy rolls are eliminated. Increased productivity without sacrifice of quality are cost factors which certainly are obvious. The granular conversion unit, in conjunction with metallic clothing, portends interesting possibilities in the carding of synthetic staple fibers.

New Spray Dyeing Process

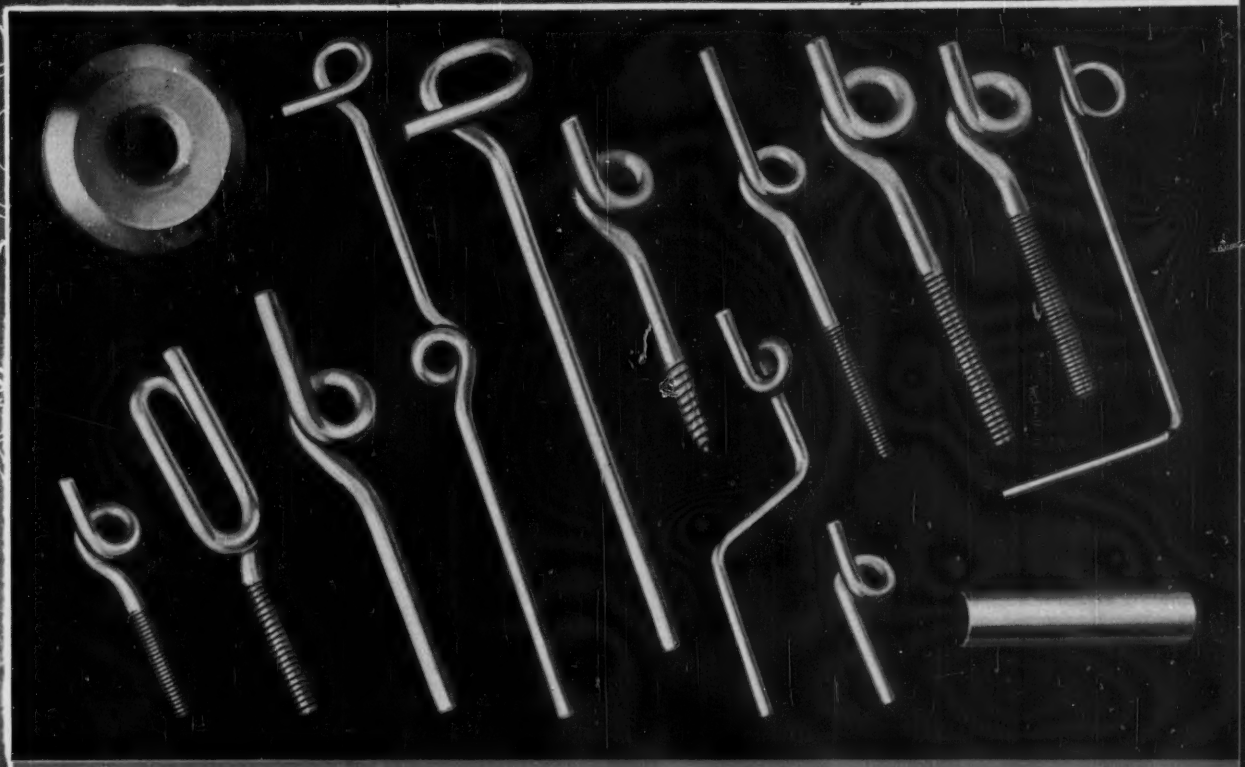
DuPont's Dyes and Chemicals Division has developed "Unifog," a new process for spraying finishing agents on textiles. The process, which DuPont is offering to the textile industry, is said to produce some finishes superior to those obtained by padding operations, and also to be more versatile, economical and faster. Unifog substitutes a series of "misters" for padding rolls, and eliminates the need for drying equipment.

Tests indicate the equipment is adaptable to aqueous solutions, dispersions, emulsions or molten solids and can be used to apply many types of textile finishes to either or both sides of fabrics. Use of steam as a propellent in certain applications is covered in DuPont's U.S. Patent 2,511,797.

DuPont reports that the process lends itself to treatment of a wide variety of fabrics, including lightweight and heavyweight flat woven goods, toweling and knit goods. Radiant-heat drying works well, producing a somewhat different finish than that obtained when the same fabric is dried in a hot air dryer.

Development of Unifog was a cooperative venture, with the Binks Manufacturing Co. designing the spray equipment to DuPont specifications, and Crystal Springs Bleachery assisting in putting the process to work on a mill scale. *For further information write the editors.*

MACHINERY and EQUIPMENT SECTION



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NEW MACHINERY EQUIPMENT

Akron Spool's 'Spobbin'

Early in 1959 the Akron Spool & Mfg. Co. developed a method of converting roving bobbins into spool type packages for which

11" x 5½" bobbin 12" x 6" Spobbin

they adopted the trade name "Spobbin." This conversion, for which patents are pending, consists of putting hard fiber flanges on both ends of the bobbins and rigidly locking them with Akron's patented "Sleeve-Lok" tubes, not only permitting use of the full bobbin barrel but also producing a fully cylindrical package. Use of Spobbins requires several changes in roving frames, especially in flyers. *For further information write the editors.*

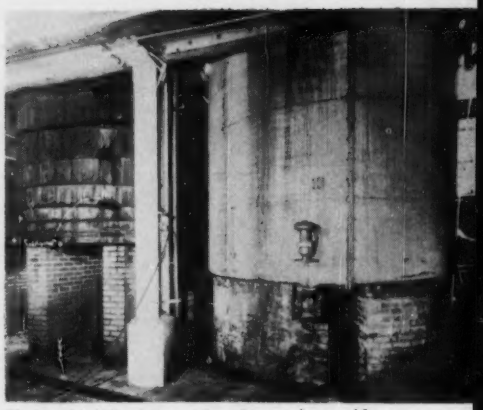
Embroidery Machine

Robert Reiner, Inc., is marketing the new Reiner 10 and 15 yard electro-pneumatic shuttle embroidery machine. The machine is built in West Germany to strictest American production and performance requirements, Reiner reports. Reiner's licensee is Zangs & Co., which constructed more than 200 10 and 15 yard machines from 1954 to 1958. Arrangements can be made to see the machine in operation in Hudson County, N. J.

The machine's advantages, according to Reiner, include: number seven shuttles, automatic oiling throughout the machine, 5 to 6-week erection, largest spanning capacity of any machine, function speed of 130 or better. *For further information write the editors.*

Two-Feed Clipper

A yarn clipper for two-feed ladies' seamless knitting machines, described as practical and effective for clipping yarn ends during the knitting operation, has been developed by Burlington Hosiery Co. The new device also is said to improve the efficiency of the machine and the quality of the stocking. Burlington has been issued U.S. Patent 2,908,154, covering the clipper attachment. *For further information write the editors.*



Plastic (right) and wooden dye tanks at Althouse dyestuff plant.

Plastic Dyestuff Tanks

Althouse Chemical Co. is replacing its wooden dyestuff tanks with tanks made of molded plastic. The company began experimenting two years ago with a 2,500-gallon polyester tank. While the initial cost was higher than wood, the life-expectancy for plastic is 15 years as compared to 5 for wood; stainless steel tanks were by-passed as too expensive. Wooden tanks often leaked and were difficult to clean and special care had to be taken to keep them from shrinking. On the other hand, plastic tanks can be cleaned instantly and immediately returned to duty; their non-absorbent surfaces eliminate dye penetration. Beetle Plastics of Crompton & Knowles, which built the original tank for Althouse, is now manufacturing more tanks for the chemical firm. *For further information write the editors.*

American System Piedmont Frame

An American system spinning frame called the "Piedmont KW" has been developed by Whitin Machine Works. The KW is a worsted adaptation of the company's new Piedmont cotton spinning frame. Higher production speeds, larger packages and high quality worsted, synthetic and blended yarns are reported advantages of the new American system spinning frame. The new machine utilizes the Whitin long-draft two-apron system and a new top arm and weighting arrangement.

The Piedmont KW is 27″ wide and has streamlined design, individual side-shaft spindle drive, straight line spinning, and two balloon control rings. All gearing is enclosed in the head end, and the machine has a built-in system for waste removal and also for dispersing motor heat from the frame. A new, efficient top arm with internal precalibrated springs for supplying weight to the top roll has been designed.

Instantaneous control of ratch or spread between the middle and back roll is also available. Maximum ratch is 9½″.

This drafting arrangement will handle fibers from 1½″ to 8¾″ with appropriate ratch settings and roll diameters. Mill and laboratory tests indicate that increase in production ranging from 20 to 30% may be secured, according to a Whitin spokesman. *For further information write the editors.*

Whitin's "Piedmont KW" American system spinning frame.

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New Uses for Unifil

Leesona's loom winder is proving successful in winding quills for novelties as well as basic fabrics

By the Editors

FOR LEESONA CORP.'S Unifil loom winders a new phase of usefulness is opening, a recent survey of users of the machine reveals. The device is already well-established as a cost-reducing attachment on thousands of looms running a variety of basic constructions. Now current interest among millmen is turning to a closer examination of the machine's versatility in winding quills for profitable novelty fabrics.

For example, the combination of Unifil and the new textured yarns are making possible an entirely new line of "wash-and-wear" crepe-like fabrics. And in the case of stretch yarn filling, mills with Unifil can obtain yarn from throwsters on packages suitable for placing directly on the Unifil supply creel.

Any conventional supply package such as cones, cheeses, bobbins, and pirns, can be used. Currently most leading producers of manmade fibers have at least one Unifil unit running on a loom in their research departments to make sure they will be able to meet calls for various types of packages capable of suitable operation on the Unifil supply creel.

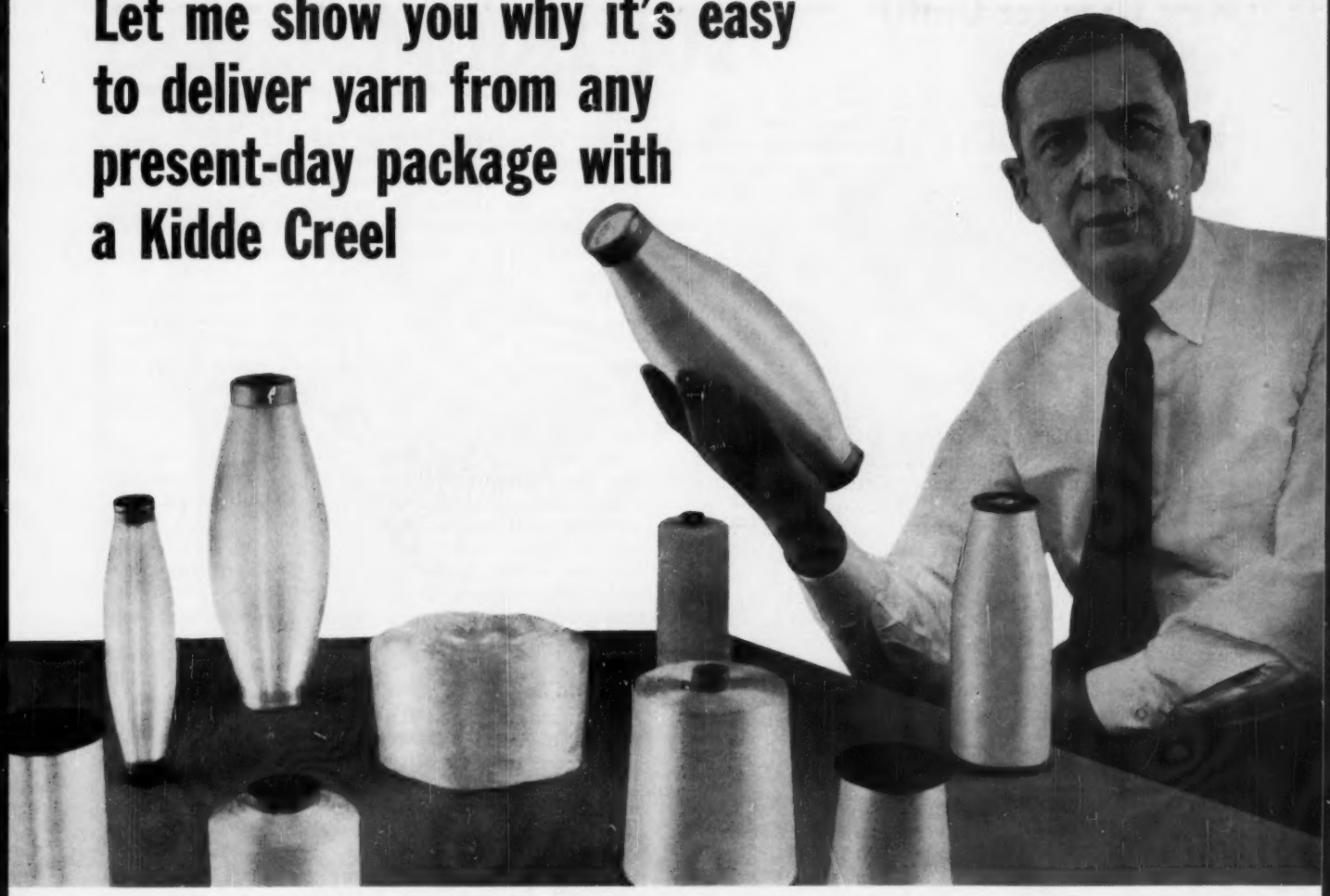
Another step in Unifil's versatility is its ability to be placed on a growing number of loom types. Preliminary action by Leesona Corp. (then Universal Winding Co.) in the years 1947-1949 centered around making Unifil work on a Draper XD automatic loom weaving broad-woven filament synthetics. Today Unifil can be installed on all Draper looms. Unifils are currently in use on Draper XD filling mix, XK, X2, XP special, X2 Extended Lay and E models. They have also been adapted to looms widely used in foreign countries.

Experimental work is moving ahead on other types of looms. While not now adaptable to box looms, Unifil is being used successfully on Draper filling-mix looms where two shuttles thrown alternately from two boxes on the left side of the loom are supplied with the same filling from the magazine on the right side.

(Continued on Page 44)

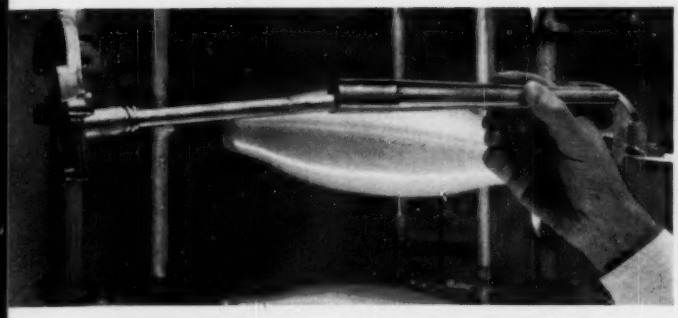
LOOM WINDERS AT WORK— Part of a large installation of Leesona's Unifil loom winders in a Southern mill

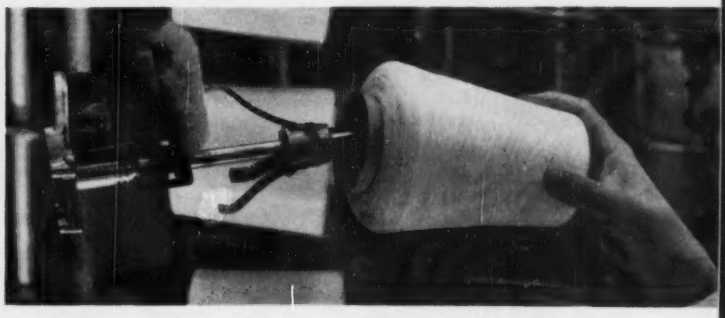
Let me show you why it's easy to deliver yarn from any present-day package with a Kidde Creel



You need only a basic holder and adapters to handle any yarn packages on the Kidde creel. You can see in the picture at bottom left, for example, how easily the basic pirn pin can be equipped with adapters to handle any pirn of textile yarn made today. The snap-on holder shown next to it accommodates any taper cone, as well as a range of straight packages. What's more, we'll design holders and adapters for future packages to accommodate them on the present Kidde creel.

Of course, this is only one Kidde feature. We could describe our tension devices and the uniquely simple Kidde stop-motion. We could explain how Kidde makes a creel to your specifications and how easily you can adjust its clamp-type construction to fit your changing needs. But we have a booklet that does all this. We'll be glad to send you one. Just write or phone.





TRICOT AND RASCHEL MACHINES • WARPERS • CREELS • SLASHERS
WINDER-REDRAWS • TENSOMETERS • PROCESSING MACHINES • TENSION COMPENSATORS

Kidde

TEXTILE MACHINERY CORPORATION — BLOOMFIELD, NEW JERSEY

The word KIDDE is the trademark of Walter Kidde & Company, Inc., and its affiliated companies.

New Uses for Unifil

(Continued from Page 42)

The mechanics of Unifil are by now well known. It may be noted, however, for the uninitiated, that Unifil is a complete winding unit attached to the loom. It brings the whole process of filling preparation into the weave room and combines it with the weaving operation. Unifil automatically winds the filling yarn on the quill; transfers the wound quill to the shuttle; strips bunch waste from the quill after it has been ejected from the shuttle; then returns the stripped quill to the winder. In this operation the quill never leaves the loom.

Where Savings Are Made

Based on mill experience, here is a breakdown of what Unifil can do for a mill running 4's singles filling. With Unifil loom winders on 100 Draper X2 looms running at 160 picks per minute at 90% efficiency, filling consumption is 11,720 pounds for 40 hours. Total installed cost of the loom winders runs to about $73,300. But resale value of displaced equipment (90 spindles of automatic quilling, one automatic quill stripper, 100 rotary loom batteries, quill cans and loom stands, 100 loom complement of filling boxes and trucks) brings actual cash outlay down to $69,750.

Annual labor savings then would come to $46,845., working out as follows:

Savings in the quilling area based on 40 hours total $104.60, arrived at by complete elimination of tenders, fixers and strippers.

Savings in the weave room would come to $162.28 per 40 hours. Under a conventional system of rewound filling, cost would total $388.98 made up of $90.18 for weavers, $68.80 for loom fixers, $161.00 for battery hands, $46.00 for filling carrier and $23.00 for quill collector (a combination job).

With Unifil, weavers' cost went up by $21.06, loom fixers' cost unchanged. Added costs for Unifil are $26.22 for cone creeler, $2.76 for cone distributor, $0.92 for waste collector, $7.82 for Unifil cleaner and $8.94 for Unifil fixer. This would come to an added cost of $67.72 for 40 hours, but eliminated would be $161 for battery hands, $46 for filling carrier and $23 for quill collector.

Looking at the entire labor cost picture, $0.07 per hour has to be added for 3rd shift premium. This would cost $9.03 under the former system, but drops to $3.74 with Unifil, for a saving of $5.29 per 40 hours. Then fringe benefits have to be taken into consideration. Figured at 15.25%, the former system would have cost $75.27, while Unifil costs would be only $35.14, for a saving of $40.13 per 40 hours

Grand totals put the former system at $577.88 against $265.58 with Unifil for a labor saving of $312.30 per 40 hours, or $46,845 for a 50-week year. Other annual savings would include $1,020 in quill replacement, $3,516 in waste reduction. Also figured is a yearly saving of $599.85 in quality improvement. With this added to the annual labor savings, we would get a grand total of $51,980.85 saved per year.

The pay-out, then would come to the net investment ($69,750.00) divided by the annual savings ($51,980.85), or 1.34 years.

The mill's increase in profit after depreciation is figured by taking annual savings ($51,980.85) and subtracting depreciation allowance (10-year straight line comes to $7,330) which yields a profit increase of $44,650.85, or $446.51 per loom year.

The same figure, $44,650.85, is the equivalent of a reduction in annual manufacturing cost. This mill was making somewhere around 7,998,000 yards of fabric a year, so the reduction in cloth cost would thus work out to $0.0056 per yard.

Experience, of course, varies from mill to mill, depending on the type of fabrics woven. The coarser the filling, the quicker the pay-off. In most mills with average-count filling, Unifil loom winders will pay for themselves in 3½ to 4 years when they replace conventional filling winders.

However, one of the most important aspects right now is the speeding up of looms with Unifil. One mill using smaller shuttles has boosted loom speed from 165 ppm to 180 ppm. Another mill has gone a step further and has taken smaller shuttles from old Model E looms, permitting their X-2 looms to go from 184 ppm to 194 ppm.

Another mill, running pastel Chromspun, reports the elimination of filling streaks due to unevenly wound filling bobbins. This can be true of all dyed yarn as well as solution-dyed, because each Unifil winder gives equal winding tension on all filling bobbins for that particular loom. And with the trend to larger packages up to eight pounds for the Unifil creel supply a mill can produce just about one complete piece of fabric from one supply of filling.

No Quill Soilage

Mills making loom-finished fabrics find that quill soilage, a crucial factor for fabrics that go directly from loom to cutter, is eliminated because the full quill is never handled. Mixed filling is virtually impossible. Defects from damaged quills or a substandard supply package are confined to one loom, and thus can be easily traced.

Virtually any type of filling yarn can be handled on Unifil. In fact many instances reveal that some yarns, difficult to hold on a filling bobbin, react favorably to Unifil. For example, glass yarns which sometimes present a slough-off problem when bobbins get too large, are being successfully run on Unifil because it is feasible, economically, to get away with smaller diameter bobbins.

In today's variable market where mills are trying to make new types of fabrics from an endlessly growing list of raw materials, Unifil is steadily arousing new interest. For example, there is considerable activity right now in an 80 x 80 stretch filling fabric using single 40's cotton warp and a 70 denier 2-ply stretch filling. Here the filling supply can be purchased right from the throwster and put directly on the Unifil.

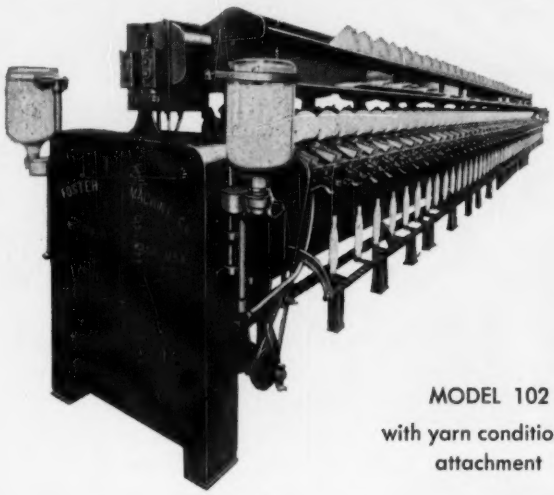
In fact, with the growth of Unifil on the one hand and the shuttleless loom on the other, weaving mills are moving toward the opportunity to purchase sales yarn in the same manner that knitters can. Sales yarn mills and throwsters are becoming increasingly aware of the need for a good-quality package that can be set right on the loom supply creel. This movement can be seen in some of the mills using direct spinning in 100% cotton. They have been loath to try the manmade yarns because of an added expense in rewinding.

But now that manmade fiber producers, throwsters and other sources will ship in a filling supply all ready for the Unifil supply creel, manmade fibers are expected to make further inroads. For example, several

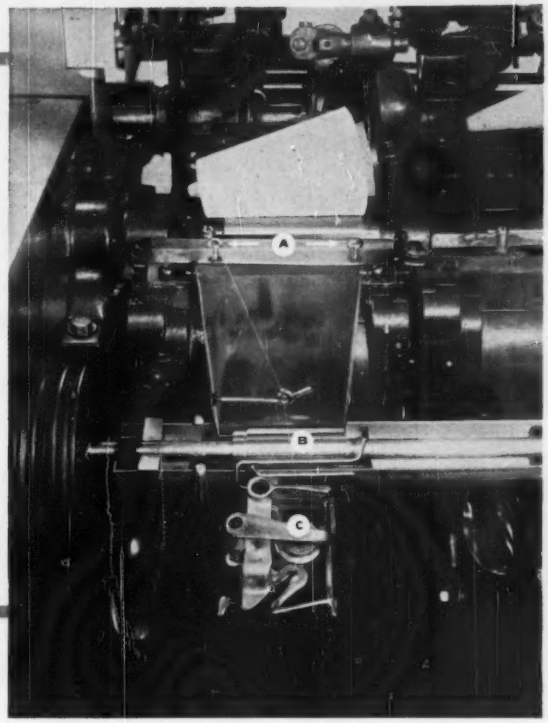
(Continued on Page 63)

FOSTER MODEL 102

. . . For Backwinding Bulk, Stretch and Texturized Yarns



MODEL 102
with yarn conditioning attachment

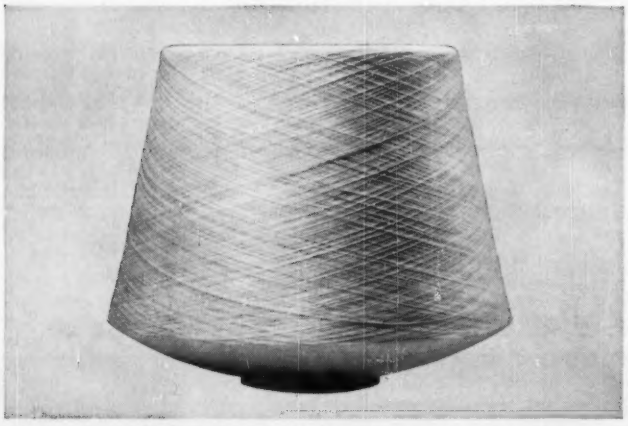


Mushroom buttons (A), moistening attachment (B) and tension attachment (C) on Model 102.

An Outstanding Example of This Machine's

FLEXIBILITY

For many years the Foster Model 102 has been widely accepted for the winding of all types and counts of spun yarns, because of its flexibility, or adaptability, including adjustable angle of wind and adjustable taper. Once again this reputation is confirmed by the machine's recent economical adaptation to the winding of bulk, stretch and texturized yarns.



142-9 Cone of Textralized® yarn wound on Model 102.

In addition to flexibility the Model 102 offers the following: —

QUALITY CONES. The increased taper reduces yarn drag and equalizes tension at all cone diameters. The convex base prevents "nipitis". Highly efficient slub catchers automatically inspect yarn. Ribbon breaker prevents ribbon wind. Idler shell on winding drum prevents chafing of yarn.

ECONOMY. Doubles production and reduces operating costs ⅓, as compared with obsolete machines, due to high speed, self threading tension device, easy donning and doffing and empty bobbin conveyor discharging into standard size truck. Repair costs as low as $10.00 per year per 100 spindles. Simple adjustments which any competent fixer can make.

Bulletin A-95-A on request

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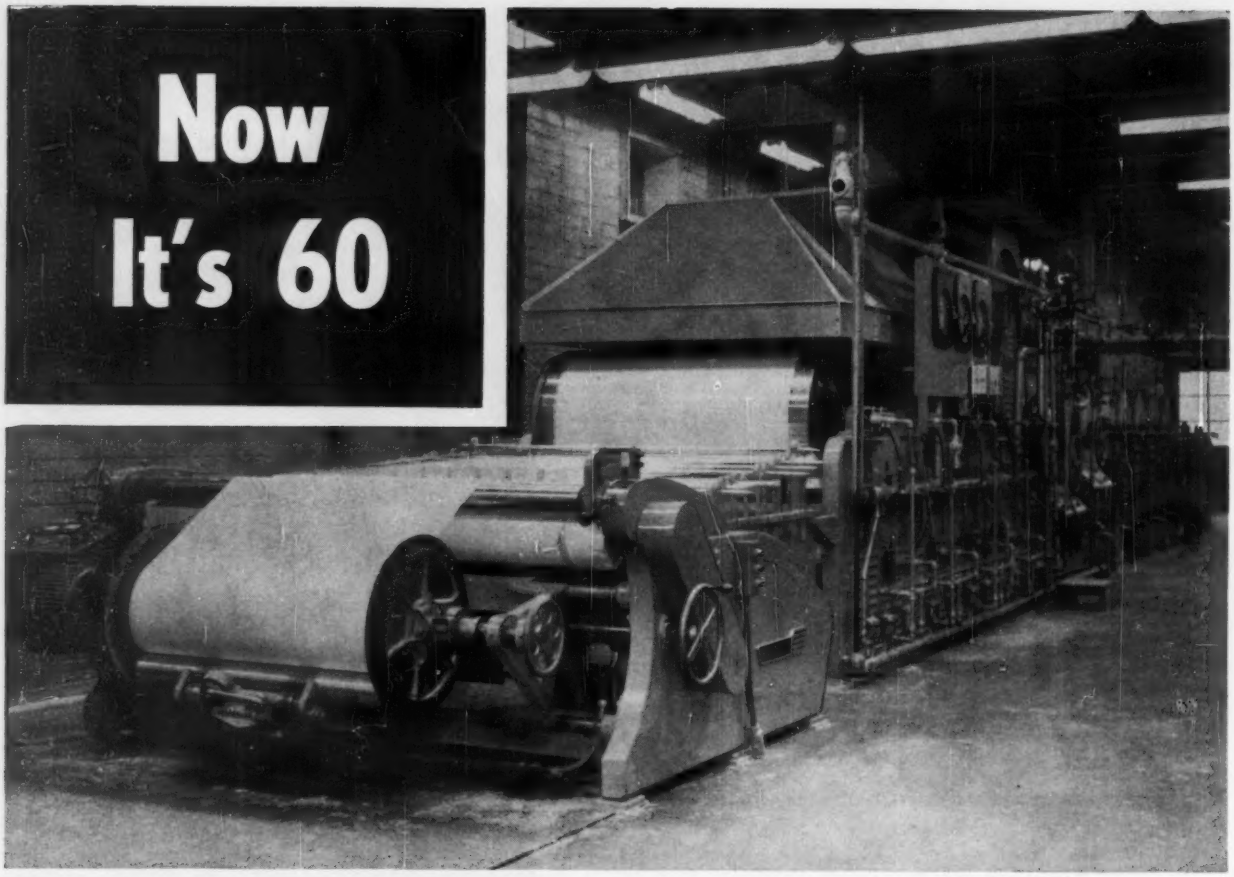

A Complete Cocker GH Slasher Installation

The Cocker GH Slasher

43 Cocker GH Slashers have been installed since the Greenville Exhibition. 17 more are on order. One mill ordered five more after the first installation met all of the exceptional claims Cocker had made for it.

The Cocker GH Slashers already in operation prove that this model is unquestionably in a class by itself . . . in production . . . in moisture regain . . . in size penetration . . . and in increased weave room efficiency and slasher operating efficiency — the World's most modern, most efficient, and most economical slasher.

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WORLD'S LARGEST DESIGNERS AND BUILDERS OF COMPLETE WARP PREPARATORY EQUIPMENT

Sidney Scheuer

(Continued from Page 24)

But even Lowinson was surprised, as young Scheuer's abilities unfolded, at how gifted an assistant he had hired.

Within a year, Scheuer was a full-fledged trader in gray goods and doing remarkably well. Within three years, he was handling more than 50% of the firm's gross sales. A year later, when his country entered the first World War, Scheuer left his job to enlist as a private. Within two years he rose to the rank of captain. Out of the army at the War's end, he returned to Lowinson and in 1920 was made a partner. In 1930, when Louis Lowinson retired, Scheuer took over the firm, changing its name to Scheuer and Co.

In the years following, Scheuer enlarged his activities as a textile broker, shaping his firm into a unique business which sharply reflected his own strongly independent and vigorously intellectual and articulate personality. He thoroughly educated himself in textiles, partly by taking night courses and more importantly, by studying the basic textbooks closely on his own. He learned about fabric designing and construction. In frequent visits to mills and finishing plants, he learned how fabrics are made and styled for the market. He studied the economics of fabric marketing and kept records of price trends and production figures.

For years, a market letter which he wrote each week and mailed throughout the trade was closely read not only by textile people, but by business writers and economists anxious to keep in touch with textile trends.

Annual charts of gray goods issued by Scheuer & Co. came to have authoritative status wherever fabrics were made and marketed. In the early 1920's Scheuer was among the first to grasp the tremendous potential of synthetic fibers. His firm was among the leaders in encouraging the increased use of rayon and acetate. Many of the most successful new constructions utilizing these fibers were worked out by Scheuer and his technicians.

When Scheuer returned to the textile business following his wartime government service, he broadened his activities to include consulting and marketing services along with fabric brokerage, rounded out, of course, by the operations of Intertex and Intertex International.

In spite of his success in business, Scheuer has never been solely a business man. Business activities, no matter how profitable, he regards as only an incidental part of a life concerned with larger issues. All during his career, Scheuer has been active in civic and communal organizations working for the good of men and women and their human institutions. A devoted member of the ethical culture movement, Scheuer served for four years as president of the New York Ethical Culture Society. He is treasurer of the International Humanist and Ethical Union, and, on the level of practical day-to-day effort to improve government, he is chairman of the National Committee for an Effective Congress.

It is this humanitarian and ethical aspect of his character that derives the major amount of satisfaction from the contract with the Soviet Union. The fact that the deal has been made, in spite of all the horrendous difficulties that stood in its way, he rightly regards as a big stride forward in closer relations between the two countries. He feels it as a step toward peace and away from the drift toward a war which no one wants and which would be, everyone agrees, equally and unspeakably disastrous to both Russia and the United States, and indeed the whole world. His feeling is one that men of good will everywhere will find it hard not to share.

U.S. Firms Pleased at Order

Several American machinery makers participating in the Soviet contract for textile machinery last month issued statements revealing the respective parts they will play in the transaction. Frederic W. Howe, Jr., president of Crompton & Knowles Corp., said his company would supply 630 looms of the W-3 woolen and worsted line at a price in excess of $4 million. Shipments are to start late in 1960 and be completed in the first half of 1961.

Howe said his company believes that anything which can be done to raise the standards of living of the Russian people is good for everyone. It was his understanding, he said, that the new machinery supplied by American manufacturers will be part of a trend in Russia toward production of more consumers' goods for the people.

Thomas J. Ault, president of Saco-Lowell Shops, stated that more than $3 million of his firm's spinning equipment is included in the new contract. Among the items included, he said, were Saco-Lowell's Versa-Matic Draw Frames, and spinning frames with MagneDraft, the new patented magnetic drafting system developed by the company.

Whitin Machine Works revealed that it will furnish 20,000 spindles of American System spinning equipment along with roving equipment for worsted and worsted-synthetic blends as well as a complete 10,000 spindle cotton unit for spinning medium yarn counts. Whitin's order is said to total $4 million.

James Hunter Machine Co. reported that, for its part in the contract, it will furnish a complete worsted finishing plant in which cloth will be washed, dyed and dried. The order is said to amount to $2 million. James H. Hunter, president, expressed the opinion that the Russian award of a contract to American firms was an excellent political move. Part of the Hunter order will be subcontracted to other firms. Parks-Woolson division of Riggs & Lombard will make shearing and inspecting equipment called for by the Hunter order.

Foster Now Lindly Sales Agent

Foster Machine Co., Westfield, Mass., has become exclusive U. S. sales representative of Lindly & Co., manufacturer of electronic controls and detection devices for spinning, winding, warping, cloth inspection, warp knitting and textile finishing operations. Conclusion of the agreement was announced jointly last month by W. C. Chisholm, president of Foster and Howard Lindeman, president of Lindly.

The arrangement, it was stressed is a "contractual

(Continued on Page 57)

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NEW FABRICS

NEW YARNS

New Uses for Corval

Courtaulds (Alabama) Inc. will introduce two new uses of its cross-linked rayon, Corval, in a 100% knit and in a blend with Dacron, for spring 1960 menswear. Both yarns were developed by Stevens Mills for Brentwood Sportswear of Philadelphia. The Brentwood line, which also features knit shirts of Corval-Orlon, and Coloray (Courtaulds' solution-dyed rayon) and cotton, will be promoted in trade advertising and in a spring consumer campaign. *For further information write the editors.*

New Saran Draperies

New, permanently non-flammable casement and drapery fabrics, readily serviceable for washing and dry cleaning, have been developed jointly by Virginia Fibre Corp. and The Dow Chemical Co. With warp yarns made from Dow's new Rovana, a saran micro-tape, the fabrics have good resistance to shrinking and sagging, good light stability and are rot and mildew-proof. They also have good resistance to gas fading. *For further information write the editors.*

Fleecy Nylon Shoe Liners

Princeton Knitting Mills, Inc. reports its fleecy nylon shoe linings, offered to the footwear trade in 16 color-stripe combinations a short time ago, have been finding wide use in the fall lines of many leading footwear manufacturers. The chief items involved are women's and girls' bootees, men's and boys' chukka-type boots, and men's insulator-type high boots. The advantages of the new linings, according to Princeton, are styling, warmth without weight, and durability. *For further information write the editors.*

Resin Coated Fabrics

A new line of resin coated fabrics—called Irvington brand coated fabric 4222—has been developed by the Irvington Division of Minnesota Mining and Manufacturing Co. The new material is coated with a modified polyester resin applied to nylon, Dacron and glass cloth or other types of fabrics in various weaves to provide desired burst and tear strength properties. The Irvington line is said to remain flexible at minus 80 degrees F., and withstand 375 degrees F. without degradation; it also has good resistance to mildew, wind and salt water. *For further information write the editors.*

Kodel in Men's Hosiery

Kodel, Eastman's polyester fiber has made its debut in men's hosiery in a new line by Interwoven. A special yarn was developed by Aberfoyle Manufacturing Co. using a blend of 50% Kodel and 50% cotton. Designed in an anklet style in a 6x3 rib, the socks are available in a wide range of colors in sizes 10½ to 13. *For further information write the editors.*

New Filter Material

A new low-density nonwoven filter material developed by Hollingsworth & Vose Co., is said to represent a new approach to the rapidly growing market for nonwoven products. The new material, trademarked Hovolite, uses a microfine rayon fiber produced by American Viscose Corp. in a matrix of Vinyon.

The company was licensed to use Vinyon as a bonding fiber under patents issued to American Viscose. The new material is reported to be versatile, with its controlled, graded pore size affording more loading capacity and longer filter life. *For further information write the editors.*

TDI Takes Over Service Bureaus

Direction of two textile industry service bureaus was transferred on January 1 from the American Cotton Manufacturers Institute, Inc. to the Textile Distributors Institute, Inc. The announcement, referring to the Design Registration Bureau and Trade Mark Bureau, was made jointly by the two associations.

Nat Leavy, president of TDI, added that the Institute has taken over the operation of the respective bureaus as part of its expanded program and as a service to the industry. The services will be available to both members and non-members of the Institute.

The bureaus, which were under the auspices of the National Federation of Textiles before its consolidation with ACMI about two years ago, will continue temporarily in the ACMI office at 10 East 40th St., New York, until they can be located at the present premises of the Institute, 469 Seventh Avenue-16th floor. They will be known as the Design Registration Bureau, a division of the Textile Distributors Institute, Inc., and the Trade Mark Bureau, a division of the Textile Distributors Institute, Inc. Present personnel will be retained to operate the bureaus under the supervision of Miss Hilda Wiedenfeld, executive director of the Institute.

Design Protection Makes Progress

A recent bulletin issued by the Textile Distributors Institute reports new developments in the effort to obtain legal protection against unauthorized copying of textile designs. The text of the bulletin follows:

In a bulletin issued last April we informed you of a decision of the United States District Court of the Southern District of New York on the subject of copyright protection of textile designs. In that bulletin we told you that the opinion of the Court in the case under discussion contained some language to the effect that if there is a valid copyright of a design, "persons who 'unite in an infringement' (such as printers, publishers, etc.) may be liable for damages resulting from the infringement".

Our counsel advise us that a decision was handed down in the Federal Court which proceeds further with this thought pointed out in our earlier bulletin. In this latest case a converter of cotton goods applied for copyright of a design used on his fabric. It was claimed that a competitor copied the design, having it printed at his finishing plant, and sold the printed fabric to some nine customers. All were joined as defendants and the plaintiff (the owner of the original design) sought a temporary injunction against his competitor, the finishing plant and the dress manufacturers who bought the finished fabric from the competitor.

The Court ruled that the plaintiff was entitled to a temporary injunction against all of the defendants, that is, against the finishing plant and the dress manufacturers who had bought the fabric from the defendant converter. It should be pointed out that this is only a temporary ruling and even if it becomes a permanent ruling it may be appealed. However, it has several significant points:

1. The Court now has actually held that a finisher who processes a fabric with a design which is an infringement of another's copyright is a proper party to an infringement action.

2. The Court has specifically held that dress manufacturers who bought goods containing designs which infringe on the copyrighted design of another were infringers of the copyright "regardless of their alleged lack of knowledge" of the original copyright. If this ruling is sustained, it will become an important milestone in the whole matter of protecting designs.

We understand that in view of these legal developments, some finishers are now taking the position that they will not engrave or print any designs on textiles unless the design is delivered to them in the form of either a painting or a cloth swatch displaying complete repeats with selvage intact.

The purpose is to protect the finisher against inadvertent printing of a design which has been copyrighted by someone other than the finisher's customer. Since a copyright design must have on the selvage a copyright notice and the name of the owner, the finisher thus is protected if he follows the policy described above.

Caprolan Marketing

A broadened marketing organization for Caprolan yarn has been announced by George H. Hotte, director of the Fiber Marketing Department for Allied Chemical's Aniline Division. Caprolan, Allied Chemical's nylon 6 filament, is used in carpeting, upholstery, automobile upholstery and tire cord. Personnel changes include: Samuel A. Cooper, assistant director of fiber marketing; Fred W. Noechel, technical service manager; William H. Poisson, manager-planning and evaluation; Robert E. Mulcahy, regional sales manager for New York and New England, and D. M. Holsenbeck, regional sales manager. The marketing program will be reflected in widened advertising, sales promotion and merchandising activity under the direction of Robert E. Ellsworth, manager of Fiber Promotion and Advertising.

Fiber Producers Elect

Edward A. O'Neal, president of The Chemstrand Corp., was elected chairman of the Man-Made Fiber Producers Association, Inc., at the annual meeting. He succeeds Andrew E. Buchanan, Jr., of Du Pont's Textile Fibers Department. Charles L. Paine, president of Courtaulds (Alabama) Inc., was elected vice chairman. Matthew H. O'Brien was reelected president and treasurer of the association. Two staff members also were elected as officers—Miss Miriam Williams as secretary and Raymond C. Baker as vice president-public relations.

AMERICAN ASSOCIATION FOR TEXTILE TECHNOLOGY INC.®

AATT

For rainwear, a new durable water-repellent finish

by C. G. DeMarco, A. J. McQuade & S. J. Kennedy

THE WATER RESISTANCE of fabrics has been of major concern to the QMC since even before World War II. One of the continuing objectives of our research program has been to overcome the deficiencies of existing water repellent treatments and to achieve a truly permanent and moisture vapor permeable repellent finish which would enable the soldier to undergo prolonged exposure to rain on the battlefield without having his clothing become soaking wet.

Perhaps it would be well at this point to explain what we mean by protection of the combat soldier and how we seek to achieve it through the textile material systems furnished to him. Let me say that we think of textiles, in their military application on the individual soldier, not as fibers or fabrics or even as garments, but as comprising an inter-related system through which a planned level of operating efficiency of the soldier is achieved. This system embraces three inter-acting elements; material properties, clothing design concepts and the human body and mind.

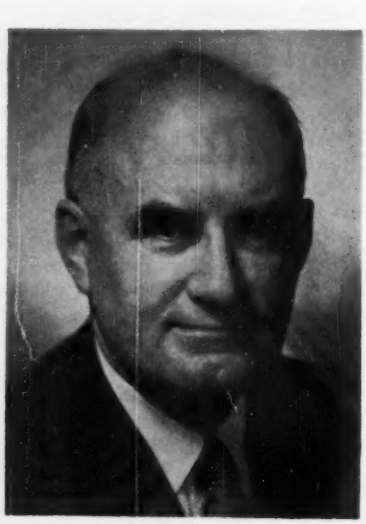
What we are looking for in a fiber, fabric or finish is to find a way to maximize the assistance which textiles used in such an inter-acting system may provide toward attaining this planned level of efficiency and to minimize the interference or discomfort which they unavoidably may create.

In determining what the combat soldier should be provided with in the form of combat clothing, we must consider what balance we will achieve between these three inter-acting elements in whatever environment the soldier will be placed. Here we are concerned with the three-dimensional natural environment in which the soldier operates—the climate environment, his immediate physical environment, and his psychological environment; and in addition, the enemy-imposed environment.

Those of you who are concerned with civilian clothing are inclined to think largely in terms of the climatic environment as being the only real problem to deal with. To a large extent research on clothing materials tends to be concerned chiefly with the regulation of body temperatures since that is the ultimate means available to the body to adjust to its climatic environment. However, to the soldier, the physical environment also is of tremendous importance, and modern military clothing must have built into it a great deal of protection against the factors of the soldier's immediate physical environment.

Dr. Kennedy's service with the Quartermaster Corps began in 1942, when he became Chief, Textile Section, Research and Development Branch, Military Planning Division, Office of The Quartermaster General, Washington, D. C. In this capacity he initiated the Quartermaster program of research and development in the field of textiles and sought and utilized the cooperation of the textile industry, in the development of improved clothing and shelter for American soldiers.

Since the war, he has continued with the Quartermaster Corps as Research Director, Textile, Clothing & Footwear Division, first in Washington and from 1954 on in Natick, Mass.



S. J. Kennedy

Paper presented at the December 2, 1959 meeting of the American Association for Textile Technology at New York, N. Y.

Carlo G. DeMarco

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For cold climate environments, we can think of this physical environment as consisting of such extreme elements as the sharp rocks and the wind-sharpened sand that abrade away the cloth surface; the thorns and barbed wire that snag and tear; the rain and snow and the wet grass and earth over which the soldier must crawl or on which he sleeps, and the myriad other factors that comprise the world in which the soldier lives. All of these elements attack his textile system. It is against their continuing and repeated attacks, as he crawls over the sharp rocks and the cutting edges of the sand, or through the thorns and barbed wire, that his clothing must protect—and continue to protect, time after time.

In addition, there are the requirements for protection necessitated by the enemy-imposed environment which is created on the battlefield. These include protection from detection, protection against flame, protection against thermal effects of nuclear weapons, protection against chemical, biological and radiological agents and protection against fragmentation weapons.

Except for protection against fragmentation weapons, all of the above types of protection must be supplied by the "shield fabric" in the outer layer of the soldier's combat uniform. The fiber and the fabric structure must provide part of this protection, principally against the physical environment. For the other types of protection the soldier is largely dependent upon the functional finishes applied in the finishing process.

From the above the reader will realize, I am sure, that we cannot be satisfied with less than a very high degree of protection against all of the factors which the soldier must contend with. One of the most serious of these is the rain from which the soldier must be protected for periods as long as 24 hours continuously.

There are two basic methods by which one can obtain water and rain protection in textile structures: It can be done by the use of a barrier material, or by a water repellent finish.

The barrier materials may consist of either a coating applied to a textile fabric or an unsupported film. The water resistance obtained from these materials both against rain and water impingement is off-set from the standpoint of clothing, by their impermeability to the passage of moisture vapor. Such clothing proves uncomfortable in use and, in addition, in cold climate clothing, creates the hazard of destroying the insulating properties of the under layers through their becoming saturated with perspiration.

In this area, there is also a group of coated fabrics which are claimed to retain a substantial capacity for moisture vapor transmission. One of the more interesting of these was the "one-way permeable fabric" developed under contract by the Quartermaster Corps during World War II which came to be known as "Vapotex". The method used here was to apply a coating to the fabric but to contain within the mix an extender which would have the effect of overextending the coating and leaving the fabric water vapor permeable. This treatment utilized neoprene rubber with calcium carbonate as the extender. Fabrics so treated retained up to 60% of their water vapor permeability. However, they lacked sufficient durability to permit their use in combat clothing, and accordingly have never been adopted by the Army. Several other water vapor permeable fabrics are reported to have been produced commercially.

TABLE I
TYPES OF WATER RESISTANT FINISHES

1. **Barrier Materials**
   a. Coated Fabrics
   b. Plastic Films
   c. Coated Fabrics with retained moisture vapor transmission
2. **Wax Type Repellents**
   a. Waxes alone
   b. Waxes plus metallic soaps
3. **"Durable" Water Repellents**
   a. Pyridinium Types
   b. Methylol Stearimides plus resin
4. **New Repellents**
   a. Silicones
   b. Fluorocarbons

Allan J. McQuade

Mr. McQuade is Chief of the Textile Functional Finishes Branch in the Textile, Clothing & Footwear Division of the QM Research Center at Natick. A graduate of Lowell Technological Institute, he has been active in textile development for the Quartermaster Corps since 1940 particularly in the field of textile finishing.

The more satisfactory approach to this problem has been to apply a water repellent treatment which does not affect the water vapor transmission characteristic of the fabric. The earliest group of these materials, which have been available for many years, are the wax-type repellents. Prior to World War II these materials were applied as rather heavy coatings. Today wax is combined with metallic soaps to provide a more desirable finish. These "non-durable" treatments are quite commonly used in rain-wear, tents, equipage, and industrial uses. Such treatments lack durability, however, since the water repellent re-emulsifies in laundering and washes out. The QMC presently uses such treatments to restore water repellency to our field clothing after laundering.

Pyridinium Finishes Appear

In the late '30s a major improvement in water repellent treatments was achieved by the development of the pyridinium type of treatment. This type of repellent partially reacted with the cellulose and achieved a certain degree of durability. However, the unreacted part of the compound tended to be removed during successive launderings of the fabric. In addition, residual soaps formed during the laundering and dry cleaning processes tended to remain on the fabric and to mask the physical properties of the repellent.

Despite the limitations of these "durable finishes", they represented a tremendous advantage to the Military Services and enabled us to change from wool outer garments to water repellent treated cotton fabrics for the outer shell of the cold weather combat uniform. In this way we were able to provide the Army with much more efficient battlefield protection against the weather than any Army had ever previously had.

Our advances in this area during the war, which were derived in considerable measure from the work of the Textile Foundation and the Harris Research Laboratories, led to improvement of our methods for selection of treatments and gave us greatly improved methods of quality control.

In addition, work conducted with the Institute of Textile Technology on the development of improved water repellent fabric structures enabled us to advance the performance of the combined water resistant fabric and finish system.

Some Further Developments

Our attempts during the postwar years to encourage the development of new and improved materials for water repellent treatment of textiles perhaps contributed somewhat to the development of two or three new types of repellents such as the methylal stearamides. These additional types of repellents did not, however, provide any marked improvement in the performance of the finished fabric either before or after laundering.

During the intervening years since World War II, new approaches to achieving water repellency have been attempted, utilizing other fields of chemistry than the long-chain hydrocarbons which had formerly been used. They have included the silicones of which a number have been produced for water repellent applications on textiles. Numerous compounds of this type have been investigated by our laboratory without our being able to demonstrate adequate durability to a point which would warrant their use for our purposes.

More recently a group of fluorocarbon compounds have been introduced which have the additional advantage of a high degree of resistance to oils and some other organic base materials. This double-purpose finish has been of particular interest to us, since it moves in the direction of multi-purpose finish such as we are looking for in the "shield" fabric of the field combat uniform. None of the compounds produced in industry, however, have shown durability to laundering such as we would require for military use.

Within the past year, however, our own laboratory, and in particular Carlo DeMarco, Gil Dias and Allan McQuade, have been working to find some new approach which would enable us to gain the advantage afforded by some of these finishes without their disadvantages. It was in the course of this work some months ago that DeMarco and Dias hit upon a new functional repellent finish of such amazing performance that it seems we have at last achieved our objective in this area. Before laundering it has a performance so much better than the pyridinium type of repellents presently available, that our standard sateen fabrics, treated with this new formula, withstood seven days of continuous 24-hour rainfall without showing any water penetration. After 15 launderings it is at least equal to the same fabric treated with a pyridinium compound when it is new. We have named this treatment "Quarpel" to designate it as the Quartermaster water repellent treatment for textiles.

Test Methods Reviewed

In order that it will be clear as to how we made this comparison, it might be well to review briefly the test methods which we use for evaluating water resistance of fabrics.

TABLE II
TESTS FOR WATER REPELLENCY

Rainroom Evaluation	Static Method
	Dynamic Method
Dynamic Absorption	Method of CCC-T-191
Hydrostatic	Method of CCC-T-191
Spray Rating	Method of CCC-T-191

We found a number of years ago that there is no entirely satisfactory laboratory test method for evaluating water repellency of fabrics as related to rainfall. Out of our wartime experience of testing at Ft. Lee, Va. we developed a 40-foot rain tower in which we can obtain simulated rainfall having the drop size and terminal velocity characteristic of natural rainfall. This rainfall can be produced in three specific intensities of 1/10", 1" and 3" per hour. Our rain room has been marked in zonal areas where the above three intensities are obtained within a variability of around 10%.

In this rain room we can expose materials in either one of two conditions. The first is a static method in which the fabric is mounted on a holder which has been calibrated to the characteristics of the shoulders of a garment worn by a test subject. Between the holder and the specimen under test is placed a piece of 8.2 oz. khaki twill on which is registered the degree of water penetration. The fact of penetration can be noted by observing the change in color of the fabric

when it wets out and the amount of penetration by weighing the khaki twill specimen.

Our dynamic evaluation method is conducted by making up the test material into jackets or raincoats which are then worn by test subjects who walk up and down in the rainfall test area identified with the specific intensity desired. Here the under clothing of the wearer is observed periodically for water penetration as well as recording the observations of the wearer on the fact that his garment is letting water through. Usually by the time the test subject complains of water leakage, there has been severe penetration through the fabrics, seams, garment openings, pockets, etc. It might be noted that evaluation of coated materials or films in this way is often quite difficult, since the test subject and his underclothing may become wetted out from the perspiration of the test subject.

Laboratory Tests Also Used

While we prefer to utilize the rain room evaluation as being more realistic in determining the water resistance of our materials, we do utilize the standard laboratory tests of dynamic absorption, hydrostatic resistance and spray rating.

Of these three the most satisfactory in our experience for evaluating the water repellent finish has been the dynamic absorption test. Here swatches of the fabric are tumbled in water for 20 minutes, and the amount of absorbed water is then weighed and compared with the dry weight of the fabric. This test has particular value in quality control to assure thorough penetration of the water repellent and proper application of the treatment in general. After laundering it is a measure of the degree to which the repellent remains effective on the fabric.

Spray rating, while used conventionally in evaluating civilian type garments has been found by us to be less satisfactory as a measure of the effectiveness of a treatment, particularly under dynamic conditions of use. Spray rating after laundering is not too satisfactory on most water repellents because of the confused result obtained due to the presence of residual soaps.

Evaluation of Fluorocarbons

The hydrostatic test to a considerable extent reflects the effectiveness of the fabric structure in resisting the passage of water. While useful on coatings, it tells very little about the water repellent finish of a permeable type fabric.

As already indicated, the fluorocarbons have been of intense interest to us because of their dual capabilities. As soon as the first announcement was made about them, our laboratory started an evaluation of their characteristics and a study of their application. The first analysis of our results was as shown in Table III.

The effect of laundering will be immediately apparent in respect to all of the test methods shown. It might also be noted that even on the standard pyridinium treated material the dynamic absorption rises very sharply after the accelerated laundering which we use for screening purposes, indicating loss of repellency. It will be noted that this Table includes an evaluation of oil resistance of the treated fabric for which we have used a provisional test method based upon contact angle observations.

I shall not attempt to review all of the efforts we have made to try to attain permanence with the fluorocarbons. Mr. DeMarco and his associates finally developed our new treatment, which we call "Quarpel", which is achieved by a combination application of a pyridinium type repellent with a fluorocarbon.

Prior to this achievement, combination applications of fluorocarbons with epoxy-type resins, urea-formaldehyde resins, melamine type resins, and methylolstearamide type compounds were attempted. Of them all, the pyridinium type combination was the only one which gave us the phenomenal results which we have indicated to you.

The interesting thing to be noted from the standpoint of laboratory tests is, first of all, that after our two-hour screening laundering there is no loss of the dynamic absorption of the Quarpel treated fabric. In addition, it will be interesting to note that the oil resistance after laundering, as shown by the contact angle rating, was the same as before laundering.

TABLE III
WATER/OIL REPELLENT PROPERTIES OF FLUOROCARBONS*

Properties Tested	Fluorocarbon Repellents			Typical Pyridinium Repellent
	A	B	C	
Spray Rating				
Initially	90	90	90	100
After laundering	50	50	50	80
Suter Hydrostatic (cm)				
Initially	38.8	40.2	41.9	42.8
After laundering	13.5	16.2	17.4	30.1
Dynamic Absorption (%)				
Initially	33.8	36.2	29.0	21.7
After laundering	61.2	48.7	41.2	30.6
Oil Contact Angle Rating				
Initially	4	5	5	0
After laundering	0	0	0	0

* Commercial fluorocarbon repellents applied to 9.0 oz. cotton sateen.

TABLE IV
COMPARISON OF QUARPEL WITH OTHER REPELLENTS*

Properties Tested	Quarpel	Pyridinium	Fluorocarbon C
Spray Rating			
Initially	90	100	90
After Screening Laundering	90	80	50
Suter Hydrostatic (cm)			
Initially	45.8	42.8	41.9
After Screening Laundering	42.5	30.1	17.4
Dynamic Absorption (%)			
Initially	20.5	21.7	29.0
After Screening Laundering	21.6	30.6	41.2
Oil Contact Angle Rating			
Initially	5	0	5
After Screening Laundering	5	0	0

* Applied to 9.0 oz. cotton sateen.

TABLE V
WATER RESISTANCE PERFORMANCE AFTER 15 LAUNDERINGS*

	Quarpel	Pyridinium	Fluorocarbon "C"
Spray Rating			
Initially	90	100	90
After 1 laundering	90	80	70
After 15 launderings	70	70	0
Suter Hydrostatic (cm)			
Initially	45.8	42.8	41.9
After 1 laundering	43.6	40.1	27.5
After 15 launderings	31.8	29.0	17.4
Dynamic Absorption (%)			
Initially	20.5	21.7	29.0
After 1 laundering	21.9	25.2	35.6
After 15 launderings	24.8	53.1	59.5
Oil Contact Angle Rating			
Initially	5	0	5
After 1 laundering	5	0	4
After 15 launderings	4	0	0

* 9.0 oz. cotton sateen.

After 15 Quartermaster mobile launderings, which is a rather severe treatment, the dynamic absorption is substantially the same as for the fabric after finishing.

This is a result which to our knowledge has never been achieved before on any water repellent treated fabric.

It will also be noted that the oil repellency is practically unaffected after 15 launderings.

The fabric which has undergone 15 launderings when placed in the rain room also shows exceptional results by being as good as a pyridinium type treated fabric when new. These results are particularly interesting in view of the failure of the spray rating and hydrostatic tests to bring out the marked superiority of this treated fabric.

TABLE VI
REPELLENT PROPERTIES OF QUARPEL APPLIED TO A 5 OZ. COTTON POPLIN

	Quarpel	Pyridinium	Fluorocarbon "C"
Spray Rating			
Initially	100	100	80
After Screening Laundering	80	80	50
Suter Hydrostatic			
Initially	41.0	32.1	37.3
After Screening Laundering	34.1	26.6	22.6
Dynamic Absorption			
Initially	22.1	22.3	30.1
After Screening Laundering	26.8	33.7	43.3
Oil Contact Angle Rating			
Initially	5	0	5
After Screening Laundering	5	0	0

We have tried out numerous other fabrics but have not up to this time been able to carry out our evaluation on all of them.

However, you can see from Table VI how Quarpel performs on a 5 oz. water repellent poplin.

The dynamic absorption here is not quite as good after screening laundering as the 9 oz. fabric, but it is still substantially better than the pyridinium treated fabric. A 5.5 oz. cotton/nylon/oxford, substantially the same weight as the poplin, ran for five days continuous rainfall in the rain room before any water penetrated.

Durable Rain Resistance

We have a raincoat made of our standard nylon/cotton/oxford which was worn in the rain tower for five hours of 1" rainfall with no leakage through the fabric. This fabric is completely water vapor permeable, and is as comfortable as any of the lightweight twill coats that are sold on the market. There was, however, some wicking along the thread which had not been treated with Quarpel, although it was treated with a pyridinium type water repellent. Ultimately we anticipate that it will be possible to obtain Quarpel treated thread so that there will be no wicking alone the thread due to absorption of water by the fiber. Such thread, we believe, should be capable of having the durability of the treated fabric. Incidentally, this fabric was the one which stood for five continuous days in the rain tower with no leakage.

We should like to call the reader's attention to the effect of the treatment upon the other mechanical properties of the fabric as shown in Table VII. Water vapor permeability shows no significant diminution as shown by the figures, 68.1 gm. for the untreated and 66.1 gm. for Quarpel treated fabric. Abrasion resistance as measured by the Stoll Abrader shows no significant diminution. Incidentally, these figures are to be compared with the value of 22 gm/m²/hr for a Vapotex treated fabric of much lighter weight.

Oil Resistance Tested

In respect to oil resistance, we have made comparison by studying the contact angle and the penetration characteristics of fabrics on which oil droplets have been placed. The effect has been to show that Quarpel treated fabrics have a very high contact angle for oil droplets. Similarly, on the oil penetration tests the Quarpel treated fabric is the only one which stands up after laundering with both the pyridinium type and the laundered fluorocarbon treated fabrics permitting penetration of the oil drops.

Although we in Quartermaster Research and Engineering are principally concerned with the development of combat fabrics and their durability to laundering rather than to dry cleaning, we have taken a cursory look at the resistance of Quarpel treated fabrics to dry cleaning. When using solvent agitation, as commonly used to demonstrate dry cleaning in the laboratory, we have found very little change in dynamic absorption properties or oil resistance of Quarpel treated fabrics.

In fact, this method of laboratory dry cleaning had relatively little effect on the fluorochemical or the pyridinium fabrics as compared to the effect obtained with an equivalent number of launderings. However, when these same materials are subject to five commercial dry cleanings, a quite different situation

TABLE VII
CHANGE OF PHYSICAL PROPERTIES TREATED WITH REPELLENTS*

Properties Tested	Untreated	Pyridinium	Fluorocarbon	Quarpel
Weight Increase (%)		4.2	2.6	4.0
Tensile Strength Grab (lbs) (wxf)	172x161	167x143	181x184	173x175
Tearing Strength Elmendorf (lbs) (wxf)	5.6x6.9	7.4x9.4	4.5x5.0	5.4x6.1
Flexibility Tinius Olsen (in-lbs) (wxf)	.001x.002	.003x.002	.009x.005	.004x.004
Flex Abrasion (Stoll) Dry (Cycles) (wxf)	911x1448	2706x3811	136x2400	3358x5369
Wet (Cycles) (wxf)	1558x2558	1143x2012	975x1788	1245x2314
Flat Abrasion (Stoll) Dry (Cycles) (wxf)	929	895	1517	1096
Wet	747	529	578	784
Air Permeability Frazer (cu ft/min/sq ft)	5.6	4.9	3.4	3.8
Moisture Vapor Transmission ASTM ($gm/m^2/hr$) (50% R.H. 90°F.)	73.4	68.1	63.2	66.7

* Applied to 9.0 oz. cotton sateen.

occurs. The rainroom exposure time of the three treated fabrics after the commercial dry cleaning was as follows:

Quarpel	8 hours
Fluorochemical	1 hour
Pyridinium	1 hour

This accelerated drop-off in repellency is apparently due to the presence of residual dry cleaning soaps. To confirm this, the samples were rinsed in solvent for three minutes followed by a three-minute water rinse. A considerable amount of soap remained in the jar following the water extraction. Although all of the soap was not removed by the extraction process, we were able to effect some improvement in the water resistance of the fabrics. In the case of the Quarpel treated fabric, the rainroom time was increased by two hours. Both the fluorochemical treated fabric and the pyridinium treated fabric were also improved, by approximately 30 minutes. Apparently by simple rinsing of dry cleaned garments the water resistance properties of rainwear fabrics can be renewed to a significant degree.

Our estimates of cost of this treatment are based simply on the amount of treating compound since both can be applied in a single bath, followed by a drying and curing operation. An estimate of cost will be shown by the normal cost of applying a pyridinium type of treatment plus the added cost of the fluorocarbon compound. Experimental testing would, of course, be required to establish the exact application procedures for any given fabric.

In short, it is our feeling that the Quarpel treatment for military textiles comes very close to our ultimate requirement for a water repellent protective finish. Similarly, we believe that it will have a tremendous interest in the rainwear field where merchandisers and manufacturers have searched for a long time for a way of retaining the comfort of a water vapor permeable fabric and still achieve a high degree of protection against rainfall. This we believe the Quarpel finish now provides to the industry. In a sense Quarpel provides a multi-purpose finish in that it is both water resistant and oil resistant. However, we have other requirement for protection of the soldier on the battlefield—protection against flame and thermal flash of atomic weapons, and protection against chemical and biological agents and radioactive fall-out.

One of the most satisfactory aspects of Quarpel is its apparent compatibility with other finishes. For example, there is the whole family of textile finishes which have been developed in the industry during the past several years to impart crease resistance, that is the so-called wash-wear family of finishes. Thus it is our belief that certain types of crease resistant finishes can also be applied on fabrics treated with Quarpel. This is an area which we have not explored extensively as it is only of secondary interest to us, but undoubtedly it will have interest to some readers who are concerned with civilian type clothing.

There is one aspect of crease resistant finishes, however, which appears to us to have significant potential value. In this family of finishes there are, as many of you know, certain finishes which have the ability to retain chlorine. From the civilian standpoint this is a very undesirable characteristic, and I believe it would be fair to say that many hundreds of thousands of dollars have been spent in the last few years in developing finishes for textiles which will get away from this undesirable characteristic. The ingenuity of the industry and the high quality

of its chemical and textile research is well illustrated by the success which has been achieved, in a relatively short time, in finding resins for crease resistant finishes which are not chlorine retentive.

We in the military, however, have just the opposite interest. For chemical warfare protection we are interested in a finish on a fabric which will hold chlorine since that is a chemical agent which is useful for counteracting certain types of chemical warfare agents. Readers who fought in World War II will remember the impregnated protective clothing which they were issued and which smelled heavily of chlorine.

Since Quarpel is compatible with resin finishes of this type, it is our expectation that some of the less desirable resins from the wash-wear standpoint because of their chlorine retentiveness, may turn out to be of great value to the Military Services for this very same reason. Of course we are referring to those which in retaining their chlorine created only color change and did not affect the other characteristics of the fabric.

Furthermore, some of these same finishes have the property of flame resistance. For example, there are the nitrogen phosphate resins which can impart significant flame resistance and which also can serve this other property of combining the chlorine. While from the civilian standpoint such compounds would not be desirable, from ours they may very well turn out to be most valuable.

In other words, the development of Quarpel with its compatibility characteristics appears to provide a basis for a true multi-purpose finish: one in which we can obtain the properties shown in Table VIII.

In the above discussion I have not covered all of these properties but have only indicated that by application of the kind of research which the industry has given to the development of wash-wear finishes in the past few years and in which they have opened up tremendous new fields of textile chemistry, we believe that there are indications that such a multi-purpose finish is capable of being achieved. At least our preliminary work in this area is sufficiently encouraging for us to mention it this time.

From what I have said I am sure the reader realizes how strongly we feel that this area of functional finishes for textiles and more particularly multi-purpose finishes, is one in which industry and the Military Services can contribute to each other. Here is a case where military research will undoubtedly be of very significant value to civilian industry. On the other hand, the research of civilian industry in this area has already opened up to us indicated possibilities of making significant improvements in strictly military requirements by which we may be able to make important contributions to the protection of the combat soldier.

TABLE VIII
PROPERTIES OF A TRUE MULTI-PURPOSE FINISH FOR MILITARY TEXTILES

1. Effective and permanent protection against rain.
2. Effective and permanent protection against oils and lubricants.
3. Effective and permanent protection against 90% hydrogen-peroxide.
4. A base treatment which can be activated with a chlorine containing compound and provide protection against chemical and biological agents.
5. A soil resistant finish which will reduce retention of small particles of contaminated dust.
6. Effective and permanent flame and fire resistance.
7. Effective and permanent resistance to degradation by micro-organisms.

Discussion

Following the presentation of the written paper, there was a discussion period during which the authors answered questions submitted by the audience. The following are some of the questions and answers.

P. MORRIS (Callaway Mills): Has Quarpel been adapted for use on 100% spun and continuous filament synthetic fabrics?

KENNEDY: You can do it if you learn how.

W. L. GINILEWICZ (Onyx Oil & Chemical Co.): How much fluorocarbon is required for a successful water repellent of your type?

DE MARCO: We use 4% fluorocarbon resulting in about 2% on the fabric.

L. MANNING (Greenwood-California Fabrics): Does Quarpel cause color change in a fabric?

MCQUADE: We have found no significant change.

S. RUDO (Werner Textile Consultants): Is Quarpel available for civilian use?

KENNEDY: We have applied for a government patent, and I am sure it will be granted. This means that it will be a public patent and that anybody can use it who wishes.

New Non-Round Nylon Yarn

DuPont's Textile Fibers Department has started output of a new multifilament nylon yarn which is characterized by a non-round cross section. To be introduced under a yet undisclosed name to distinguish it from regular DuPont nylon, the new yarn differs from ordinary nylon in that many fabrics made from it have a distinctive "dry hand," improved cover, unusual surface appearance and improved print definition and clarity. Other qualities, such as drape, dyeability and wash and wear properties, are comparable to those of the ordinary nylon.

The new yarn is expected to find wide application in apparel end uses, including women's dresses, blouses, lingerie, foundation garments and shell fabrics for men's outer jackets.

The new yarn is a premium product and will cost 5 to 10 cents a pound more than comparable yarns of ordinary nylon. It is being made in limited poundages in the following deniers and prices: 30 denier, 10 filament, semi-dull, $2.46 a pound; 40 denier, 13 filament, semi-dull, $2.11; 40 denier, 13 filament, dull, $2.16; 70 denier, 34 filament, semi-dull, $1.81; and 200 denier, 34 filament, semi-dull, $1.54.

The sparkling nylon put on the market by DuPont recently for the hosiery industry also is said to have a non-round cross section yarn.

For the DYER and FINISHER

New Verona Dyestuffs

Verona Dyestuffs is now offering three new products—Astra Violet 3R Extra, Levalan Blue FFR, and Levapon THD. The first is a new basic violet said to be economical and able to produce red shades in combination with Astrazon Orange G. Levlan is a new homogeneous dyestuff which produces brilliant blue shades having good fastness to light; it is recommended for wool as well as nylon. Levapon is a new auxiliary for boiling out, bleaching and scouring of textiles; it has good rewettability and dispersing properties. *For further information write the editors.*

Du Pont Dyeing Patent

Application of aqueous vat dyes without reducing agent, to provide sharper, more intense colors than can be obtained economically by other methods of textile printing, is covered in a United States patent issued recently and assigned to Du Pont. The new process differs from current printing methods in that vat dye pastes are incorporated in a water-in-oil emulsion that permits printing without immediate development. Certain features of the Du Pont pad-steam continuous dyeing process are employed for the color development. *For further information write the editors.*

New Blue Dye

A new dye, Irgalan Blue FGL, which is recommended for general use on wool, nylon or silk, has been developed by Geigy Dyestuffs Division of Geigy Chemical Corp. The FGL blue is said to be greener and considerably brighter in shade than the well known GL blue. *For copies of Bulletin No. 117-G which describes this dye write the editors.*

New Vat Brown

General Aniline & Film Corp. has introduced a new vat dye called Indanthrene Maroon B Infra Paste, a straight vat brown dye. It is said to possess good fastness on cotton, rayon and other cellulosic fibers.

The shade of maroon brown displayed by the new vat dyestuff is particularly applicable for fabrics which are exposed to frequent washings, such as dress materials, blouses, play clothing, and children's apparel. The dye is also said to provide a desirable base component in combination with other suitable vat dyestuffs for producing deep brown and chocolate shades. *For further information write the editors.*

Polyester Dye Carrier

Putnam Chemical Corp. offers Palatinit TX 5064, a carrier for dyeing polyester fibers developed by the research laboratories of BASF. It is said to be completely nontoxic and soluble in hot water. Its solubility permits the carrier to be removed from the fiber after the dyeing cycle so that it will not produce odor during storage or additional processing. *For further information write the editors.*

New Dyeing Assistant

Descriptive literature on the use of a new dyeing assistant, Fancosol P, has been issued by the W. F. Fancourt Co., producer of textile chemicals. Fancosol P serves as an effective retarding agent in the absorption of dye by Orlon or any acrylic fiber with basic dyestuff. It also can be used combined with caustic soda and hydrosulphite to strip vat dyestuffs from fibers. *For copies of descriptive literature write the editors.*

Foster-Lindly (Continued from Page 47)

one" in which both companies retain their independence and separate corporate identity. Chisholm said that the collaboration of the two companies would have advantages for the textile industry. Lindeman said that Lindly products have already received widespread and rapid acceptance by the textile industry in Europe and elsewhere abroad as well as in the United States. He revealed about 1,000 Lindly units are already in use. He stated his opinion that the new sales arrangement with Foster would speed the use of Lindly equipment in this country.

Lindly electronic devices now in use include the Automatic Yarn Inspector; the Electrotense for tensioning yarn; the Photo-Scanner for use on tricot knitting machines, to scan for defects and stop the knitter when they occur; the Dyna-Micro-Gage for such measurement jobs as monitoring spun yarn counts and filament yarn deniers to an accuracy of a few millionths of an inch.

Lindly devices in use in textiles also include the Spun Yarn and Tire Cord Inspector, Integrator Type, a complex variation of the regular Yarn Inspector; the Thread and Line Inspector for thread, yarn, string, fishing line, medical sutures, and similar material; the Lindly Automatic End Break Detector, for use in the warping operation; the Lind-Recorder, for use in recording or timing events; the Photoelectric Seam Detector, to detect seams in quadruply folded sheeting as it goes over the perry table; and the Lindly Automatic Yarn Defect Analyzer, which can be used to spot check or sample a given batch of yarn or the output of a certain machine or spindle for laboratory or quality control purposes.

Other devices which Lindly makes available are the Lance Static Eliminator and the Lance Electric Safety Lock, both originated in England.

IT'S THE FINISH THAT COUNTS!

NO. 873

NO. 511

NO. 306

NO. 410

With thirty-five years experience in Textiles, we are in a position to suggest any particular type of guide for your requirements.
On standard and fast moving styles we are able to make overnight delivery.
Man-made fibers and high speeds of today made it necessary to develop guides that will stand up under these conditions. Our "CLOMA" Guides are made from a homogeneous composition that is hard, smooth and uniform, which means less replacement, better quality product. Where tension and wear is a problem, we suggest this type guides.

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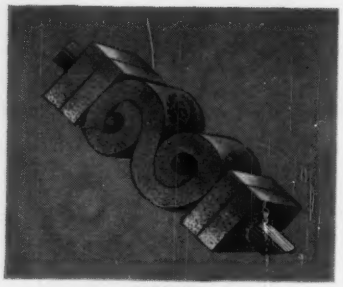

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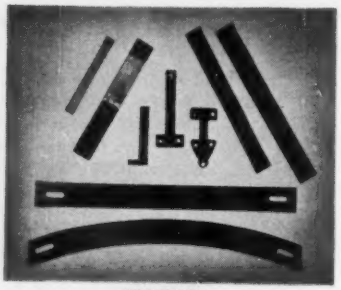

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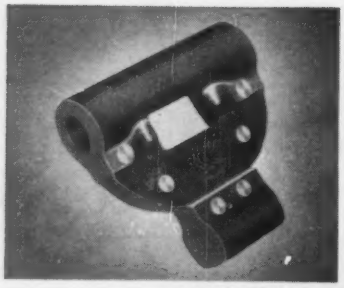

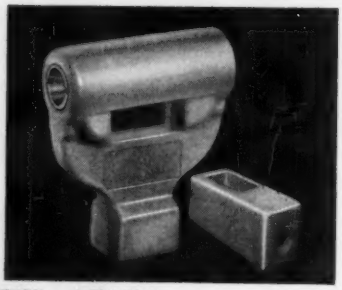

LOOM PICKERS . . . RAWHIDE and PLASTIC

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TEXTILE — NEWS BRIEFS

Textile Encyclopedia

"Man-Made Textile Encyclopedia," described as the first full definitive account of the workings of the entire man-made fiber and textile industries, has been published by Textile Book Publishers, Inc., 250 5th Ave., New York 1, N. Y. It is designed to serve every interest in the textile industry, from chemical raw materials to garment manufacture, renovation, marketing and economics. The encyclopedia contains 944 pages and is priced at $27.50.

New Du Pont Trademark

The term "Ondelette" has replaced "Ondule" as the trademark for DuPont's random slubbed rayon yarn. Use of the new trademark became effective at once. Yarn properties and fiber characteristics are unchanged.

New Polyester Fiber Booklet

A six page leaflet describing the properties and functional advantages of Vycron polyester fiber has been made available by Vycron's producer, Beaunit Mills Fibers Division. *Free copies may be obtained by writing the editors.*

Bigger Nat'l Starch Lab.

New construction to increase National Starch and Chemical Corp's research and technical development facilities by more than 50% was begun recently with the breaking of ground for two additional buildings at the company's Alexander Research Laboratories in Plainfield, N. J. National's major research and development operations have been centralized at Plainfield since 1952 although laboratories are maintained in Chicago, San Francisco, Montreal and Toronto, and at Slough, England.

Carbic-Hoechst to Move

Intercontinental Chemical Corp. is building a modern building at Mountainside, N. J., to serve as the new home for Carbic-Hoechst Corp., Hostachem Corp. and Hostawax Co., technical representatives and distributors for the products of Farbwerke Hoechst AG, West Germany, and Hoechst Chemical Corp., West Warwick, R. I. Carbic-Hoechst, which sells dyestuffs, pigments and textile chemicals, will move from 451 Washington St., New York.

(Continued on Page 61)

U. S. MAN-MADE FIBER PRICES

This schedule lists the prices of yarns, staple and tow as reported by the producers in January 1960. All prices are given as subject to change without notice.

CELLULOSIC YARNS

ACETATE

American Viscose Corp.

Current Prices
Effective March 13, 1959

Bright and Dull

* Intermediate Twist

Denier & Filaments	Cones & 4-6 Lb. Tubes	Twister Tubes	Warps	Spinning Cones	Twist Warps
40/11	....	....	....	....	$1.04
45/11	....	....	....	....	.93
55/14	$ .99	$ .97	$1.00	....	.77
75/20	.95	.93	.96	$ .89	.90
100/28	.91	.89	.92	.85	.86
120/32	.82	.80	.83	.76	.77
150/41	.74	.73	.75	.69	.70
200/54	.70	.69	.71	.66	.67
300/80	.66	.65	.67	.62	.63

* Standard Twist 2¢ Additional.
Terms: Net 30 Days.

Celanese Corp. of America

Current Prices
Effective March 10, 1959

Bright & Dull

Denier and Filaments	Intermediate Twist 4 & 6-Lb. Cones	Intermediate Twist 4 & 6-Lb. Beams	4-Pound Cheeses	Spinning Twist Cones	Spinning Twist Beams	Spinning Twist O Twist Tubes
45/13	$1.12	$1.13	$	$	$	$ ....
75/20	.95	.96	....	.89	.90	.79
75/50	.97	.98	....	....	.92	.84
100/26-40	.91	.92	....	.85	.86	.77
120/40	.82	.83	....	.76	.77	....
150/40	.74	.75	.74	.69	.70	.66
200/52	.70	.71	....	.66	.67	....
300/80	.66	.67	....	.62	.63	.60
450/120	.66	.67	....	.62	.63	....
600/160	.65	.66	....	....	....	....
900/80-240	.63	.64	....	....	....	.61

150 Denier 12-TM Tubes ..... .73
2-Pound Cheeses ..... .01 Less Than 4-Pound Cheeses
2-BU and 4-BU Tubes ..... Same Price as 4 and 6-Lb. Cones

Terms: Net 30 days. Shipments prepaid to any destination in U.S.A.
Prices subject to change without notice.
All previous prices withdrawn.
Prices on unlisted items can be obtained upon request.
Orders are subject to conditions of sale appearing on our acknowledgements of orders.

Celaperm Filament Yarn Prices

Denier and Filaments	Intermediate Twist 4 & 6-Lb. Cones	Intermediate Twist 4 & 6-Lb. Beams	Spinning Twist Cones	Spinning Twist Beams
55/15	$1.37	$1.38	$1.31	$1.32
75/20	1.34	1.35	1.28	1.29
100/26	1.28	1.29	1.22	1.23
120/40	1.19	1.20	1.13	1.14
150/40	1.11	1.12	1.06	1.07
200/52	1.05	1.06	1.01	1.02
300/80	1.01	1.02	.97	.98
450/120	.99	1.00	.95	.96
600/160	.97	.98	....	....
900/80	.94	....	....	....

Celaperm Black Yarn Prices

Effective March 11, 1955

Denier and Filaments	4 & 6-Lb. Intermediate Twist Cones	4 & 6-Lb. Intermediate Twist Beams	Spinning Twist Cones	Spinning Twist Beams
55/15	$1.17	$1.18	$1.11	$1.12
75/20	1.14	1.15	1.08	1.09
100/26	1.08	1.09	1.02	1.03
120/40	.99	1.00	.93	.94
150/40	.91	.92	.86	.87
200/52	.85	.86	.81	.82
300/80	.81	.82	.77	.78
450/120	.79	.80	.75	.76
600/160	.77	.78	....	....
900/80	.74	....	....	....

3 to 5 Turns on Cones or Beams — $.02 Additional

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A.
Prices subject to change without notice.
All previous prices withdrawn.
Note: Prices on unlisted items can be obtained upon request.
Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.
Current Prices

Acetate

Denier & Filament	Zero Twist Tubes	Zero Twist Beams	Low Twist Cones	Low Twist Beams	Intermediate Twist 2 & 4 Lb. ⅝" Tbs.	Intermediate Twist 4 & 6 Lb. Tw. Tbs.	Intermediate Twist Cones	Intermediate Twist Bms.
40-13	$1.06	$1.13						
45-13	.94	1.02		$1.11				
55-18	.82	.86		.91			$.99	$1.00
55-24	.82	.86		.91			.99	1.00
75-24	.79	.89		.90		$.93	.95	.96
75-50				.92		.95	.97	.98
100-32	.77	.35		.86		.89	.91	.91
120-50	.73	.76		.77		.81	.82	.83
150-40	.66	.69	$.69	.70	.74	.74	.74	.75
200-60/64	.65		.66	.67	.70	.70	.70	.71
240-80			.65				.69	
300-80	.60	.62	.62	.63	.66	.66	.66	.67
450-120	.61		.62	.63	.66	.66	.66	.67
600-160					.65		.65	.66
900-44					.63		.63	.64
900-240	.61				.63		.63	.64
1800-88					.61		.61	.62
2700-132					.61		.61	.62
3000-210					.61		.61	.62

(A) Regular Twist (2.9 and 5 T.P.I.)—add $.02 to Intermediate Twist Price.
(B) 1 lb. ⅝" Tubes—add $.02 to 2 & 4 lb. ⅝" Tube Price.

Color-Sealed

Denier & Filament	Zero Twist Tubes	Zero Twist Beams	Low Twist Cones	Low Twist Beams	Intermediate Twist Twisted Tubes 2 Lb.	Intermediate Twist Twisted Tubes 4 & 6 Lb.	Intermediate Twist Cones	Intermediate Twist Beams
55-18	$1.245	$1.315		$1.32	$1.35	$1.35	$1.37	$1.38
75-24	1.18	1.28		1.29	1.32	1.32	1.34	1.35
100-32	1.14			1.23	1.26	1.26	1.28	1.29
150-40	1.03	1.06	1.06	1.07	1.10	1.11	1.11	1.12
200-64	1.00			1.02	1.04	1.05	1.05	1.06
300-80	.95	.97		.98	1.00	1.01	1.01	1.02

(A) Regular Twist—Add $.02 to Intermediate Twist Price.

Black

Denier & Filament	Zero Twist Tubes	Zero Twist Beams	Low Twist Cones	Low Twist Beams	Intermediate Twist 2 & 4 Lb. ⅝" Tbs.	Intermediate Twist 4 & 6 Lb. Tw. Tbs.	Intermediate Twist Cones	Intermediate Twist Beams
40-13	$1.215	$1.285						
55-18	1.045	1.115		$1.12		$1.15	$1.17	$1.18
75-24	.98	1.08		1.09		1.12	1.14	1.15
100-32	.94			1.03		1.06	1.08	1.09
150-40	.83	.86	.86	.87		.91	.91	.92
200-60	.80		.81	.82		.85	.85	.86
300-80	.75	.77	.77	.78	.81	.81	.81	.82
450-120				.76	.79	.79	.79	.80
600-160				.74	.77	.77	.77	.78
900-240, 44				.74	.74	.74	.74	.75

(A) Regular Twist (2.9 and 5 T.P.I.)—add $.02 to Int. Twist Price.
(B) 1 lb. ⅝" Tubes—add $.02 to 2 & 4 lb. ⅝" Tube Price.

Specialty Yarns

Type 20	Same Price as Regular Yarn
Type C	Same Price as Regular Yarn

Thick & Thin

Denier & Filament	Natural Cones	Natural Beams	Black Cones	Black Beams	Color-Sealed Cones
200-64 Int. Twist	$1.05	$	$1.15	$	$1.35
200-64 Reg. Twist	1.08	1.09	1.17	1.21	....

Terms: Net 30 days. Subject to changes without notice.
Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

Eastman Chemical Products, Inc.

Tennessee Eastman Co.
Effective March 13, 1959

"Estron"* Yarn, Bright or Dull — White

Denier & Filament	Regular Twist Cones	Regular Twist Beams	Intermediate Twist Cones	Intermediate Twist Beams	Low Twist Cones	Low Twist Beams	Zero Twist Tubes	Tricot Beams Spun Twist	Tricot Beams Zero Twist
55/13	$1.01	$1.02	$0.99	$1.00	$0.93	$0.94	$0.82	$0.87	$0.86
75/19	.97	.98	.95	.96	.89	.90	....	.90	....
75/49	.99	1.00	.97	.98	....	....	....	....	....
100/25	.93	.94	.91	.92	.85	.86	....	....	....
120/30	.84	.85	.82	.83	.76	.77	....	....	....
150/38	.76	.77	.74	.75	.69	.70	.66	....	....
200/50	.72	.73	.70	.71	.66	.67	....	....	....
300/75	.68	.69	.66	.67	.62	.63	.60	....	....
450/114	.68	.69	.66	.67	.62	.63	....	....	....
600/156	.67	.68	.65	.66	.62	.63	....	....	....
900/230	.65	.66	.63	.64	....	....	.61	....	....
Heavier	....	....	....	....	....	....	.56	....	....

Current Prices—December 19, 1955

"Chromspun"*—Standard Colors (Except Black)

Denier & Filament	Regular Twist Cones	Regular Twist Beams	Intermediate Twist Cones	Intermediate Twist Beams	Low Twist Cones	Low Twist Beams
55/13	$1.39	$1.40	$1.37	$1.38	$1.31	$1.32
75/19	1.36	1.37	1.34	1.35	1.28	1.29
100/25	1.30	1.31	1.28	1.29	1.22	1.23
150/38	....	....	1.11	1.12	1.06	1.07
300/75	....	....	1.01	1.02	.97	.98
450/114	....	....	.99	1.00	.95	.96
900/230	....	....	.94	.95	....	....

Current Prices

"Chromspun"*—Black

Denier & Filament	Regular Twist Cones	Intermediate Twist Cones	Intermediate Twist Beams	Low Twist Beams
55/13	$1.19	$1.17	$1.18	$1.12
75/19	1.16	1.14	1.15	1.09
100/25	1.10	1.08	1.09	1.03
150/38	.93	.91	.92	.87
200/50	.87	.85	.86	.82
300/75	.83	.81	.82	.78
450/114	.81	.79	.80	.76
900/230	.76	.74	.75	....

Prices are subject to change without notice.
Prices on special items quoted on request.
Terms: Net 30 days. Payment—U. S. A. dollars.
Transportation charges prepaid or allowed to destination in continental United States except Alaska. Seller reserves right to select route and method of shipment. If Buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.
* "Estron" is a trade-mark of the Eastman Kodak Company.
* Chromspun is a trade-mark of the Eastman Kodak Company.

RAYON

American Bemberg

Current Prices

Regular Production Reel Spun Yarn

Den/Fil	No Turn Skeins	Turned* Skeins & Cones	8½ Turns	High Turn Skeins & Cones 12 Turns	15 Turns	18 Turns
40/30	$1.49	$1.95	....	....	....	$2.08
50/36	1.29	1.55	....	....	....	1.85
65/45	1.22	1.38	....	$1.61	....	1.66
76/60**	1.11	1.25	....	1.48	$1.53	1.56
100/74**	1.02	1.15	....	1.40	1.45	1.51
125/60	1.01	1.12	$1.16	1.37	....	....
150/120	.99	1.08	1.18	1.33	....	....
300/225	....	1.01	....	....	1.14	....
900/744	....	.91	....	....	....	....
1800/744	....	.91	....	....	....	....

* Turn includes twists up to 6 turns on 40 and 50 denier, and up to 5 turns on heavier deniers.
** Spun Dyed Cupracolor Black 15¢ per lb. extra.

"44" HH Spool Spun Yarn

Den/Fil	No Turn Tubes	No Turn Beams	5 Turn Beams	5 Turn Cones	12 Turn Beams	12 Turn Cones	15 Turn Cones
40/30	$1.35	$1.35	....	....	....	....	....
50/36	1.05	1.05	....	....	....	....	....
65/45	1.13	....	....	....	....	$1.50	....
75/45*	1.04	....	$1.15	$1.15	$1.38	1.38	$1.46
100/60*	.96	....	1.10	1.10	1.30	1.30	1.38
125/60	.91	....	1.06	1.06	....	....	....
150/90*	.83	....	.87	.87	1.21	1.21	1.30
150/120	.87	....	....	.99	....	....	....

* Available also in Spun Dyed Cupracolor Black at 15¢ per lb. extra.

"44" HH "Parfe" Spool Spun Yarn

Den/Fil	No Turn Cones	5 Turn Cones	5 Turn Beams	12 Turn Cones	15 Turn Cones
50/36	$1.60	$1.85	$1.85	....	....
75/45	1.48	1.58	1.58	1.78	1.88
100/60	1.38	1.48	1.48	1.68	1.78
150/90	1.21	1.28	1.28	1.63	1.73
300/120	1.21	1.28	....	....	....

Nub-Lite (Short Nubbi)

Code	Den/Fil	2½ Turn Natural Cones	2½ Turn Cones*	5 Turn Natural Cones	5 Turn Cones*
1515	160/90	....	....	$1.50	$1.40
1519**	155/90	....	....	1.50	1.40
2008	200/120	....	....	1.11	1.01
3002	315/180	$1.15	$1.05	....	....
4011	410/224	1.15	1.05	....	....
6001	600/360	1.13	1.03	....	....
8001	860/450	1.13	1.03	....	....

* Basic price for cones when dyed. Dyed Colors 30 and 35 cents above basic price. Prices based on 200 lb. dyed lots only. Prices for natural yarn skeins same as natural cone prices.
** Code 1519 can be run in warp or filling.

CUPIONI Type B

Code	Den/Fil	2½ Turn Cones
9650	70/45	$1.69
9680	100/60	1.53
1545	150/90	1.30
9730	285/135	1.15
9792	450/225	1.15
9814	600/372	1.12
9837	940/372	1.02

"Spun Dyed Cupracolor is spun 150, 285, and 940 deniers at 35¢ per pound extra. Cupracolor Black Comes in all deniers."

STRATA SLUB

Code	Den/Fil	Turned Cones	Price
9747	275/225	3½	$1.25
9798	450/372	2½	1.15
9823	600/372	2½	1.10
9847	960/372	2½	1.02
9885	1290/372	1½	1.00
9934	2680/744	1½	1.00

"Spun Dyed Cupracolor is spun in 600 and 960 deniers at 35¢ per pound extra."

FLAIKONA

Code	Den/Fil	Turned Cones	Price
9699	150/148	2½	$1.35
9769	300/224	2½	1.25
9782	450/270	2½	1.05
9809	600/360	2½	1.05
9840	900/450	2½	1.00
9924	2000/744	2½	.95

"Spun Dyed Cupracolor Black 35¢ per pound extra."
Terms: Net 30 days, F. O. B. shipping point. Minimum freight allowed to consignee's nearest freight station east of the Mississippi River. To points west of the Mississippi River minimum freight allowed to Memphis, Tennessee. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F. O. B. delivery point.
Prices are subject to change without notice.

American Enka Corp.

Current Prices
Effective June 29, 1959
Standard Quality Yarns

Standard Quality Rayon Yarns

NATURAL

Den./Fil.	Luster	Turns		Weaving Cones	Weaving Beams	Skeins Long	Skeins Short	Cakes	Knitting Cones
50/18	E	5	S	....	....	....	....	....	1.63
50/20	B	4	S&Z	....	....	....	....	1.52	1.64
75/10	B	3	S&Z	....	....	....	....	1.02	....
75/18	E	4	S	....	....	....	....	....	1.14
75/30	B	4	S&Z	....	....	1.32	1.41	1.02	1.14
75/30	B	8	S	1.24	—	1.49	1.59	1.12	1.24
75/45	P,E	4,5	S&Z	....	....	1.32	1.41	1.02	1.14
75/60	B,P	3,4	Z	1.16	....	....	....	1.04	....
100/14	B	3	S&Z	....	....	....	1.23	.90	....
100/40	B,E	12	S&Z	....	....	....	....	....	1.29
100/40	B,P,E	4,5	S&Z	....	.98	....	....	.90	.98
100/40	B	6	S	1.17	....	1.34	1.44	1.09	....
100/40	B,P	2.5,4	S&Z	.98	.98	1.15	1.23	.90	....
100/60	B	4	S&Z	....	....	....	....	.90	....
100/60	E	2.5	S	1.00	1.00	....	....	.92	....
125/40	E	3	Z	....	....	....	....	.87	.90
125/50	B,P	3	S	.96	.96	....	....	....	....
150/40	B,E	0		.745	....	....	....	....	....
150/40	B,P,E	2.1,3	S&Z	.82	.82	.96	1.03	.78	.82
150/40	B,E	5	S&Z	.90	.90	1.15	1.25	.86	....
150/40	B,E	8	S&Z	.95	.95	1.20	1.30	.91	....
150/90	E	2.1	S&Z	.83	.83	....	....	.79	....
200/40	P	3	Z	....	....	.94	1.01	.77	.81
200/40	B	2.1	S	.81	.81	.94	1.01	.77	....
250/60	P,E	2.4	Z	....	....	.93	1.00	.77	.80
300/30	E	3	S	.81	.85	....	....	....	....
300/50	B,E	3	S	.73	.76	....	....	....	....
300/60,120	B,P,E	2.1	S&Z	.73	.73	.82	.89	.71	.73
300/60	B	3.5	S	.73	.73	.82	.89	.71	....
300/60	B	6	S	.86	.86	....	1.00	.84	....
300/60	B	8	S	.88	.88	....	....	.86	....
300/120H.T.	B	2.5	S	.75	.75	....	....	.73	....
300/40H.T.	B	3	Z	.85	....	....	....	.83	....
450/60	B	3	S	.69	.71	....	....	.67	....
450/80	B,E	3	S	.69	.71	.78	.85	.67	....
600/80	B,E	3	S	.73	.75	....	....	....	....
600/120	B	3	S	.69	.71	.78	.85	.67	....
900/120	B	3.4	S	.69	.71	.78	.85	.67	....
900/120H.T.	B	3.6	S	.71	.71	....	....	.69	....

B = Briglo
P = Periglo (Semi-Dull)
E = Englo (Dull)
H.T. = High Tenacity

Jetspun® (Colored Yarns)

Den./Fil.	Tenacity	Turns	Weaving Cones	Weaving Beams	Colors
100/40	Regular	2.5S	$1.35	$1.35	All
150/40	Regular	2.1S	1.17	1.17	All
200/40	Regular	8.3S	1.28	1.28	All
300/40	Regular	3.4S	1.09	1.09	All
300/120	Regular	2.1S	1.09	1.09	All
450/80	Regular	3.0S	1.05	1.05	All
600/80	Regular	3.4S	1.04	1.04	All
300/40	High	3.4S	1.11	1.11	All
600/80	High	3.4S	1.07	1.07	All
900/120	High	3.4S	1.06	1.06	All

® Registered Trade Mark for American Enka Solution-dyed Rayon Yarn.

Skyloft (Lofted Rayon Filament Yarns) Natural and Jetspun®

Denier	Denier per Filament	Twist	Cones or Tubes Natural	Cones or Tubes Black	Other Colors
1000	7.5	3.5S	$.92	$1.17	$1.17
2200	15	3.5S&Z	.67	.77	.84
2700	15	3.5S&Z	.67	.77	.84
4300	15	3.0S&Z	.66	.76	.83
5300	15	3.0S&Z	.65	.75	.82

American Viscose Corp.

Effective October 13, 1959

Graded Yarns

Denier	Filament	Type	Short Skeins	Long Skeins	Cones Tubes	Beams Spools	Cakes
		Regular Turns					
75	10-30	Bright	$1.41	$1.32	$1.14	$1.14	$1.02
75	30	Dull	....	....	1.14	1.14	1.02
100	14-40	Bright	1.23	1.15	.98	.98	.90
100	60	Dull	....	....	1.00	1.00	.92
150	24-40	Bright	1.03	.96	.82	.82	.78
150	40	Semi-Dull	1.03	.96	.82	.82	.78

News

(Continued from Page 58)

Sun Buys Pigment Firm

Sun Chemical Corp. has purchased for an undisclosed amount the Pennsylvania Color & Chemical Co., of Doylestown, Pa. Pennsylvania Color, with sales in excess of $1,000,000 annually, is a manufacturer of pigments dispersed in solid form and in various vehicles which are used in the manufacture of inks for fine color printing, industrial coatings, plastics, cosmetics and numerous other applications. It will be operated as one of Sun Chemical's autonomous divisions under its present management, V. C. Bidlack and J. M. Feild.

New Glass Yarn Plant

Owens-Corning Fiberglass Corp. is building a new glass textile yarn plant at Aiken, S.C. The new plant is on a 350-acre site. Construction is well underway with initial production scheduled for June, 1960. Yarns produced at the plant will be used in decorative curtain and drapery fabrics, for electrical insulation, coated cloth, paper reinforcement, waterproofing applications and as reinforcement for a wide variety of plastic products.

Corn Products Promotions

Appointed as vice presidents of the new and reorganized Corn Products Co. were: Robert W. Bond, market planning; Darrel K. Brickley, sales service; Jenkin J. Jones, refined and processed oils; John M. Krno, sales promotion and development, and Henry M. Mays, feed and by-product sales. The new division will be responsible for the sales and merchandising of all industrial products, including those previously handled by the company's Best Food Division.

J. G. Ferguson

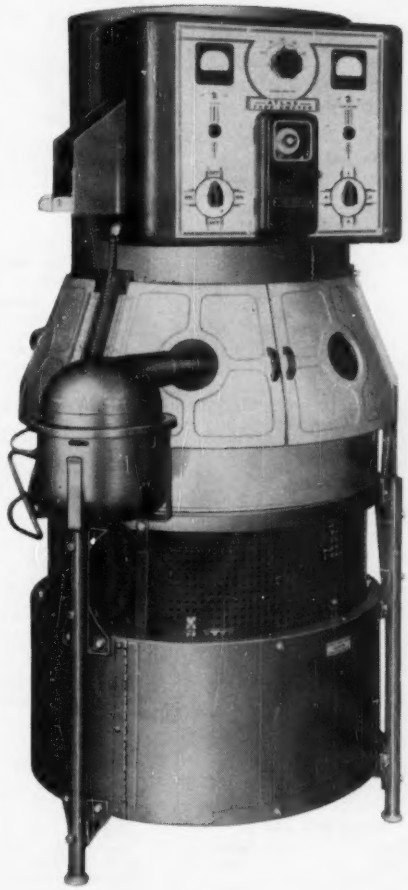
Named Putnam Agent

Putnam Chemical Corp. has named John G. Ferguson to represent it in the mid-Atlantic area, with headquarters in Putnam's Philadelphia office. Ferguson has more than 20 years experience in cottons and synthetics.

(Continued on Page 65)

the NEW Model FDA-RC

Fade-Ometer®



Exposure conditions can be varied to provide good correlation with either the Daylight or Sunlight exposure methods.

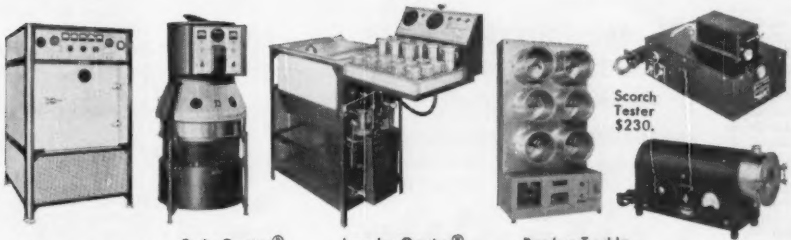
As the two natural light methods on moisture sensitive materials can produce wide variation in colorfastness ratings, it would be expected that two different exposure conditions in the Fade-Ometer would be necessary to duplicate them.

To simulate the day and night cycling of the Daylight method where the specimens are left in the cabinet 24 hours a day, new conditions of higher relative humidity during alternate periods of light and darkness are utilized in the Model FDA-RC.

The new Fade-Ometer may also be operated under the standard conditions for the FDA-R to duplicate the Sunlight method where the specimens are placed in the cabinet only between 9 and 3 on sunny days.

Added new features include an electrically operated atomizer, combination Cycle Meter and Time Switch, and modification of the electrical circuits to permit operation of the components during the light-off period.

All Model FDA-R Fade-Ometers now in use may be easily converted into the Model FDA-RC. *Write for full details on either a new machine or on conversion of present equipment.*



Weather-Ometer® $2755 up.

Fade-Ometer® $1350 up. Complete with supplies.

Launder-Ometer® $875 complete with accessories and supplies.

Random Tumble Pilling Tester $485 to $890.

Scorch Tester $230.

Accelerator® $485

ATLAS ELECTRIC DEVICES CO., 4114 N. Ravenswood Ave., Chicago 13, Illinois, U.S.A.

Sales representatives in principal cities throughout the world

150	40	Dull	....	....	.82	.82	.78
150	90	Dull	....	....	.83	....	.79
200	10-44	Bright	1.01	.94	.81	.81	.77
250	60	Semi-Dull & Dull	1.00	.93	.80	.80	.77
300	15	Bright	....	.85	.78	.78	....
300	30	Dull Flat Filament	....	....	....	.85	....
300	44	Bright & Dull	.89	.82	.73	.73	.71
300	234	Dull	....	....	.83	....	.81
450	60-100	Bright	....	.78	.69	.71	.67
600	100	Bright & Dull	....	.78	.69	.71	.67
900	50-100-150	Bright	....	.78	.69	.71	.67
1200	75	Bright	....	.78	.69	.71	....
2700	150	Bright	....	.78	.69	.71	....

Extra Turns Per Inch

150	40	Bright	6-Turns	$1.25	$1.15	$ .90	$ .90	$ .88
200	44	Bright	6-Turns	....	1.05	.96	.96	....
300	15	Bright	5-Turns	....	....	.86	.86	....
300	44	Bright	4.3-Turns	....	....	.81	....	.79
300	44	Bright	6-Turns	.97	.90	.86	.86	.84
300	120	Rayflex	6-Turns	....	....	.93	.93	....
600	30	Bright	5-Turns	....	.86	.82	.82	.80

Rayflex Yarns

150	40-60	Rayflex	$	$	$ .85	$ .85	$ .81
200	75	Rayflex	....	....	.84	.84	.80
300	60-120	Rayflex	....	....	.75	.75	.73
450	120	Rayflex	....	....	.71	.71	.69
600	234	Rayflex	....	....	.71	.71	.69
900	350	Rayflex	....	.80	.71	.71	.69

Thick & Thin Yarns

150	40-90	Bright & Dull	$	$	$1.18	$	$ ....
200	75	Bright & Dull	....	....	1.05	....	....
300	120	Bright & Dull	....	....	.98	....	....
450	100	Bright & Dull	....	....	.92	....	....
490	120	Bright & Dull	....	....	.98	....	....
900	350	Dull	....	....	1.03	....	....
920	120	Bright & Dull	....	....	1.03	....	....

Colorspun Yarns

Denier	Type	Cones/Tubes Beams/Spools
75	Regular Strength	$1.71
100	Regular Strength	1.35
150	Regular Strength	1.17
200	Regular Strength	1.14
300	Regular Strength	1.09
450	Regular Strength	1.05
600	Regular Strength	1.05
900	Regular Strength	1.05
300	High Strength	1.11
450	High Strength	1.06
900	High Strength	1.06
300	Regular Strength 5-Turns	1.19

Avicron Yarns

Avicron Yarns

Denier	Filament		Cones/Tubes Beams/Spools
1800	100-200	Singles & 2 Ply	$.68
2700	150-300-980	Singles & 2 Ply	.65

Viscose Filament Yarns

The following material deposit charges are required:

Metal Section Beams	$170.00 each
Metal Section Beam Racks	75.00 each
Metal Tricot Spools—14" flange	30.00 each
21" flange	60.00 each
32" flange	150.00 each
Metal Tricot Spool Racks—14" flange	135.00 each
21" flange	100.00 each
32" flange	75.00 each
Wooden Tricot Spool Crates	20.00 each
Cloth Cake Covers	.05 each

Same to be credited upon return in good condition—freight collect.

Celanese Corp. of America

Current Prices

Effective June 24

Viscose Rayon Filament Yarn Prices—Bright and Dull

Denier/Fil/Twist		Beams	Cones	Cakes
75/30/3			1.10	.98
100/40/2Z		.97		
100/40/3			.96	.88
100/40/5			1.02	
100/60/2Z	NS		.96	
100/60/3			.98	.90
125/40/2Z		.93		
125/40/3			.94	.85
150/40/0	NS		.74½	
150/40/2Z		.81		
150/40/3			.79½	.76
150/40/5			.90	.86
150/40/8			.95	.91
150/90/0	NS		.77½	
250/60/0	NS		.74	
250/60/3			.80	.77
300/50/0	NS		.70	
300/50/2Z		.72		
300/50/3			.70½	.69
450/120/0	NS		.67	

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U. S. A.

Prices subject to change without notice.

All previous prices withdrawn.

Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices

Effective with orders June 24, 1959

Bright and Dull

Den.	Fil.	Turns/ Inch Up to		Beams	Cones (A) Tubes	Cones (A) Cakes
40	20	3	Textile "Cordura"•		$1.97	$1.92
50	20	3			1.70	
50	20	3	Textile "Cordura"		1.72	1.67
50	35	3	Textile "Cordura"		1.77	
75	10	3	Bright			1.02
75	30	3		$1.14	1.14	1.02
100	40	3	Bright	.98	.98	.90
100	60	3	Dull		1.00	.92
125	50	3		.96	.96	.87
150	40	3		.82	.82	.78
150	60	3	Bright	.82	.82	.78
150	60	3	Textile "Cordura"		.875	.845
150	90	3	Dull		.83	
150	100	3	Dull		.83	
300	50	2.5		.73	.73	.71
300	120	3	Textile "Cordura"	.74	.74	.72
450	72	3		.71	.69	.67
600	96	3	Bright	.71	.69	.67
600	240	3	Textile "Cordura"	.72	.70	
900	50	3	Bright	.71	.69	.67
900	144	3	Bright	.71	.69	.67
1165	480	3	Textile "Cordura"	.72	.70	.68
1800	100	3	Bright		.69	
2700	150	3	Bright	.71	.69	

Thick and Thin

100	40	3	#7 Bright		1.42	
150	90	3	#7 Bright		1.08	
200	80	3	#7 Bright		1.08	
450	100	3	#7 Bright		.92	
1100	240	3	#60 Bright		1.03	
2200	480	3	#60 Bright		.98	

Monofils

150	1	3	Bright	1.35	1.35	
300	1	3	Bright	1.15	1.10	
600	1	3	Bright		1.00	

Plush

300	30	3	Dull	.85	.81	

(A) 2¢/lb. additional for cones less than 3#.

Terms: Net 30 days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

• "CORDURA" and "SUPER CORDURA" are Du Pont's registered trade-marks for its high tenacity rayon yarn.

Industrial Rayon Corp.

Effective June 29, 1959

Continuous Process Textile Yarns

Denier	Filament	Turns per In.	Type	Beams	2.8# Cones	4.4# Cones and Tubes
150	40	2.5"S"	Bright	.82	.82	
200	20	2.5"S"	Bright	.81	.81	
300	44	2.5"S"	Bright	.73	.73	
450	60	2.0"S"	Bright	.69		.69
600	90	1.5"S"	Bright	.69		.69
900	50	2.0"S"	Bright	.69		.69
900	150	2.0"S"	Bright	.69		.69
1100	480	2.0"Z"	Bright extra strong	.66		.66

Lustre #4 is semi-dull.

Prices are subject to change without notice.

Strawn Monofilament

Denier	Filament	Turns per In.	Type	4.4# Cones	Spools and Tubes
450	1	0	Bright and Dull	1.00	1.05
450	1	2	Bright and Dull	1.00	1.05
1250	1	0	Bright and Dull	1.00	1.05
1250	1	2	Bright and Dull	1.00	1.05

Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges prepaid with transportation allowed at lowest published rate to all points in continental United States except Alaska.

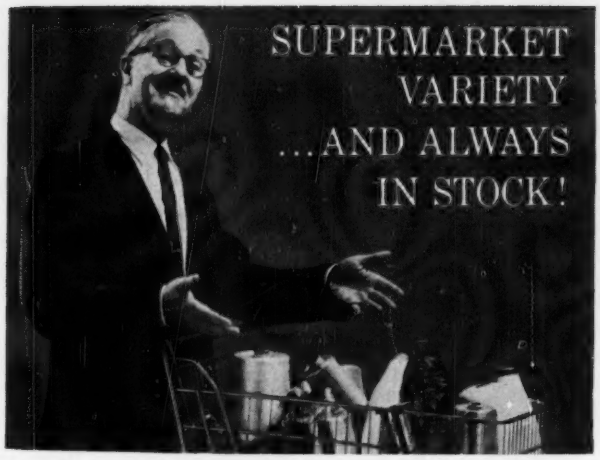
Prices are subject to change without notice.

North American Rayon Corp.

Current Prices

Prices Effective July 3, 1959

Denier/Filament Normal Strength Yarns — NARCO	Twist	Knitting* Cones	No Twist Knitting Cones	Weaving Cones, Velvet Cones, Beams, Tubes**	Untreated Cakes
75/30	3.5			1.14	1.02
75/30	7			1.27	
75/30	12			1.35	
75/30	15			1.37	
75/30	20			1.40	
100/40/60	3.5			.98	.90
100/40	12			1.22	
125/25/60	3			.96	.87



Delivered immediately!

RAYON • NYLON • ACETATE YARNS
graded and inferiors—all put ups.

MALORA® METALLIC YARNS
supported and unsupported

THROWN YARNS

HELANCA® STRETCH YARNS
NYLON • DACRON

Malina COMPANY

®T. M.

125 WEST 41st STREET, NEW YORK 36, LOngacre 3-4200

New Generic Name Asked

Hartford Fibres Co., a division of Bigelow-Sanford Carpet Co., has filed an application with the Federal Trade Commission for a new generic name, "Polynosic," for its new cellulosic fiber. Production of the fiber in the U.S. will start this summer. It is being marketed under Hartford's trademarked name, Zantrel, and is being imported by Hartford Fibres from the Gauchy, France, plant of Compagnie Industrielle de Textiles Artificiels et Synthetiques. Hartford Fibres reports the new fiber justifies a generic name of its own due to its radically different properties from rayon and other man-made cellulosic fibers.

Film Plant Starts Up

Avisun Corp. has started commercial production of Olefane, a high-clarity, high-strength polypropylene film for packaging applications, at its New Castle, Del., facilities. The plant has a 10,000,000-pound-a-year capacity and will produce film from one through four mils for general packaging usage and sheets from four to twenty mil thickness for thermo-forming. AviSun already has on stream its Port Reading, N. J., unit for producing 20 million pounds a year of polypropylene polymer, used in making Olefane film. AviSun will enter the popropylene fiber market in 1960, with pilot plant facilities at New Castle.

Lintless Polyester Uniforms

Lint, a major problem in industries producing delicate mechanical and electronic components, has been found to be virtually eliminated from manufacturing areas when workers wear new uniforms woven of continuous filament yarns of 100% Dacron polyester fiber, according to Du Pont. *For further information write the editors.*

Unifil

(Continued from Page 44)

mills which formerly ran only all-cotton fabrics, warp and filling, are now running filament-synthetic fillings in cotton warps. The filling yarns are brought from the fiber producers on cones with transfer tails ready for the Unifil creel. Such mills are running new styles without having to buy new quillers, or modify old ones if they already have them. Also they are relieved of the necessity of acquiring the know-how of filament-synthetics filling preparation.

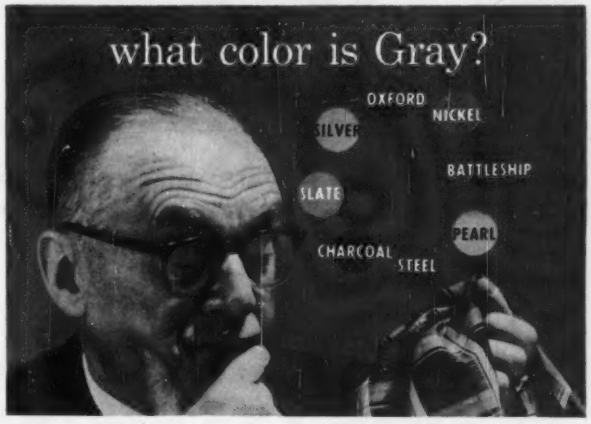
Leesona is now installing Unifil loom winders at the rate of 2,000 a month. This is the peak installation rate toward which the company set its operations beginning in the latter part of 1958. Leesona spokesmen say that the schedule will be maintained for the foreseeable future.

The company has a substantial backlog of orders to carry the present production schedule well into 1960. Close to 80 plants of 52 textile firms are using Unifil to weave such fabrics as drills, twills, sateens, taffetas, shirtings, satins, gabardines, denims, terry towelling, jacquard fabrics, osnaburgs, marquisettes, draperies and tire-cord fabrics.

New Du Pont Laboratory

DuPont has opened a new textile testing laboratory at Geneva, Switzerland, and started a new Orlon acrylic fiber plant in Dordrecht, Netherlands.

The Swiss lab will assist customers in Europe and other parts of the world in their use of DuPont's synthetic fibers. It also will supplement the Orlon plant in the Netherlands, which is scheduled to start production in 1961. The plant will have an initial capacity of about 15,000,000 pounds of Orlon a year.



At ATLANTIC color specified is color delivered . . . assured by superior techniques and facilities acknowledged in the industry.

YARN DYEING

Rayon • Nylon • Acetate • Stretch Yarns
Cakes • Packages • Skeins

Custom-matched colors. Large dye batches.
Any degree of color fastness. Packaged as desired.
PROMPT DELIVERY

Atlantic
Rayon Corporation

125 WEST 41st ST., NEW YORK 36, LONGACRE 3-4200
PLANT: 86 CRARY ST., PROVIDENCE, R. I.

150/42	0		.74½		
150/42/60	3	.80½		.82	.78
300/75	0		.71		
300/75	3	.73		.73	.71
900/46	2.5	.69		.69	
1800/92	2.5	.69		.69	

* Oiled Cones $.01 per pound extra for Graded Yarns only.
** 1 lb. Tubes $.02 per pound extra for Graded Yarns only.

Terms: Net 30 days, F.O.B. shipping point, minimum freight allowed to consignee's nearest freight station east of the Mississippi River. To points west of the Mississippi River minimum freight to Memphis, Tennessee allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point.

Prices subject to change without notice.

TRIACETATE

Celanese Corp. of America

Current Prices

Arnel Yarn Prices
Bright & Dull

Effective August 19, 1958

Denier and Filaments	Cones	Beams	Thick and Thin Cones
55/WKZ/15	$	$1.16	$ ....
55/2Z/15	1.32	1.33	....
75/WKZ/20	....	1.16	....
75/2Z/20	1.21	1.22	....
100/2Z/26	1.14	1.15	....
150/2Z/40	.95	.96	....
200/2Z/40	....	....	....
200/2Z/52	.92	.93	1.25
300/2Z/80	.87	.88	1.23
450/2Z/120	.86	.87	....
600/2Z/160	.85	.86	1.21

3 to 5 Turns on Cones or Beams—$.02 Additional
Premium for Black Arnel—$.25 Per Pound
Premium for Navy Arnel—$.37 Per Pound

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

CELLULOSIC HIGH TENACITY YARN and FABRIC

American Enka Corp.

Effective December 19, 1958

Tempra (High Tenacity)

Denier	Elongation	Beams & Cones
1100/480	Low	.60
1230/480	High	.60
1650/720	Low	.53
1820/720	High	.53
2200/960	High & Low	.52

Enka II

*1100/720	Low	.62
*1650/1100	Low	.55
2200/1440	Low & High	.54

Terms: Net 30 days, f.o.b. Enka, North Carolina, or Lowland, Tennessee; minimum freight allowed to first destination east of the Mississippi River. * Tyrex certified viscose yarn.

American Viscose Corp.

Effective Dec. 23, 1959

Tyrex*
Tyrex* Viscose Tire Yarn

Denier	Filament	Twist	Beams	Cones
1100	980	0	.57	.57
1100	980	Z	.57	....
1650	1500	0	.50	.50
1650	1500	Z	.50	....

Tire Fabric Made with Tyrex* Viscose Tire Yarn and Cord

Denier	Filament	Carcass	Top Ply	Breaker
1100	980/2	.69	.69	.69
		Factor Open-525	300-490	115-275
1650	1500/2	.59	.60	.625

Factor determined by dividing total ends by picks.

* Tyrex is a collective trade-mark of Tyrex Inc. for Viscose Tire Yarn and Cord.

Rayon Tire Yarn
Yarn

Denier	Filament	Twist	High Strength (Unslashed)	High Strength	Super "Rayflex" 210-310	Super "Rayflex" 120-220-320
1100	490	0-Z	....	.56	....	....
1100	980	0-Z	....	....	....	.57
1150	490	Z	.56	....	....	....
1230	490	Z	.56	....	....	....
1650	980	Z	.49	.49	.49	....
1650	980	0	....	.49	....	....
1650	1500	Z	....	....	....	.50
1650	1500	0	....	....	....	.50
1875	980	Z	.49	....	.49	.50
2200	980	0	....	.48	....	....
2200	1500	0	....	....	....	.49
3300	3000	0	....	....	....	.49
4400	3000	0	....	....	....	.49

High Strength available on cones—tubes—beams.

High Strength and Super "Rayflex"

0 Twist—available on 10# cones—beams—10# tubes.
Z Twist—available on beams.

Avisco Bag Twine

Sold by The American Thread Company

1100/980 Super "Rayflex"	0-Z	Cones	.62
1500/980 Super "Rayflex"	0-Z	Cones	.59
1780/980 Super "Rayflex"	0-Z	Cones	.55

Also available in red at .07 premium.

Chafer Yarn

1100/490 High Strength	5Z Twist	.60

All yarns sold "Not Guaranteed for Dyeing".

Tire Fabric

Denier	Filament	Type	Carcass	Top Ply	Breaker
1100	980	Super 120-220-320	.69	.69	.69
		Factor*	Open-525	300-490	115-275
1650	980	Super 110-210-310	.58	.59	.615
1650	1500	Super 120-220-320	.59	.60	.625

* Factor determined by dividing total ends by picks.

Cord on cones in regular Tire Yarn twists same as fabric prices.

Other twist combinations—prices quoted on request.

When supplied, yarns and cords in special packages take premiums indicated.

10.5 oz Wardwell Tubes	.10
1.5 lb Regular Braider Tubes	.06
3.5 lb Tubes	.045

The following deposit charges are made on invoices:

Beams	$55.00 each
Crates (Metal)	75.00 each
Fabric Shell Rolls	3.50 each

Same to be credited upon return in good condition—freight collect.

Rayon Tire Yarn and Fabric

Terms: Net 30 days. Seller to select and to pay transportation charges of common and contract carrier except when shipment moves West of the Mississippi River, in which event the actual cost of transportation to the Mississippi River crossing based on the lowest published freight rate, shall be allowed. Title to pass when merchandise is delivered to consignee. Transportation allowance based on lowest published volume rate shall be granted if merchandise is transported from shipping point in vehicle owned or leased and operated by buyer and title to pass when merchandise is delivered to same.

Price subject to change without notice.

Celanese Corporation of America

Effective December 27, 1955

Fortisan Yarn Prices

Denier	Packages	Natural	Black
30/2.5/40	2 lb. Cones	$3.00 lb.	$3.35 lb.
60/2.5/80	4 " "	2.40 "	2.75 "
90/2.5/120	4 " "	2.25 "	2.60 "
120/2.5/160	4 " "	2.05 "	2.40 "
150/2.5/180	4 " "	1.95 "	2.30 "
270/2.5/360	4 " "	1.85 "	2.20 "
300/2.5/360	4 " "	1.85 "	2.20 "
60/2.5/80 Olive Green—Spun Dyed—OG106		4 lb. Cones	3.50 lb.

Terms: Net 30 days. Shipments prepaid to any destination in U.S.A.

Prices subject to change without notice.

All previous prices withdrawn.

Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

Fortisan-36 Rayon Yarn
Bright

Denier and Filament	Twist	4# cones	8# cones	Tubes	Beams
270/280	0.8Z	$2.30			
300/280	0.8Z	$2.05			
300/280	3Z	$2.20			
400/400	0.8Z	$1.75			$1.70
400/400	0			$1.75	
800/800	0.8Z	$1.25	$1.25		$1.20
800/800	3Z	$1.40			
800/800	0			$1.25	
1600/1600	0.8Z	$1.15	$1.15		$1.10
1600/1600	2½Z	$1.30			
1600/1600	0			$1.15	

Terms: Net 30 days. Shipments prepaid to any destination in U.S.A.

Prices subject to change without notice.

All previous prices withdrawn.

Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices

Effective December 23, 1959

"Super Cordura"*

Den Fil	Turns/in	All Packages
1100-720	2	.57
1200-720	2	.57
1530-960	2	.59
1600-960	2	.52
1650-1100	2	.50
1800-1100	2	.50
2200-1440	2	.49
2400-1440	2	.49

Terms: Net 30 Days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

* "CORDURA" and "SUPER CORDURA" are DuPont's registered trade-marks for its high tenacity rayon yarn.

Industrial Rayon Corporation

Effective September 21, 1959

Unbleached Bright High Tenacity Yarns

Single End Beams and Cones—Type 100

Denier	Filament	Turns per Inch	Beams	Cones
1100	480	2.0 "Z"	.56	.56
1150	480	2.0 "Z"	.56	.56
1650	720	2.0 "Z"	.49	.49
1725	720	2.0 "Z"	.49	.49
2200	1000	2.0 "Z"	.48	.48
3300	1440	2.0 "Z"	.48	.48
4400	2000	2.0 "Z"	.48	.48

Type 400 prices are 4¢ more.

News

(Continued from Page 61)

Charles L. Fitts has been appointed representative for National Ring Traveler Co. in the Virginia and Eastern North Carolina territory.

Arch E. Cutting has joined Southern Machinery Co. as sales engineer.

Charles E. Hollis has joined the machinery equipment department of the Uster Corp. as a sales engineer.

R. O. McGraw, Jr.

Ralph O. McGraw, Jr. has been appointed district manager for the midwest territory of Onyx Oil & Chemical Co.

Albert Laughey

Albert Laughey has been named general sales manager of Collins & Aikman Corp.'s yarn division.

N. J. Alexander

Norman J. Alexander has been appointed vice president of Liberty Fabrics of New York, Inc.

Charles F. Stokes has been appointed New England manager for Carbic-Hoechst Corp., Dyestuff Division. He will make his headquarters at Hoechst Chemical Corp., 129 Quidnick St., West Warwick, R. I.

Garland Mfg. Names Representatives

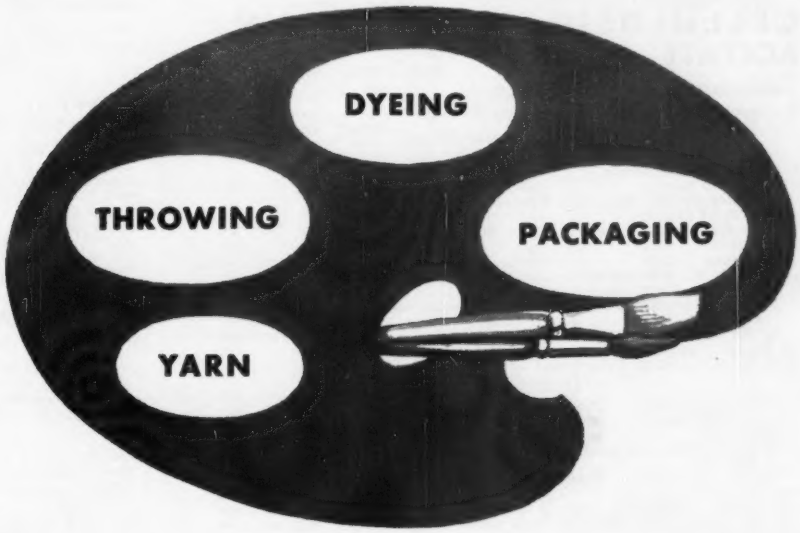
Garland Manufacturing Co., Saco, Maine has announced the appointment of Wilson F. Hurley and Henry W. Harrison (Hurley & Harrison, Inc.), Greenville, S. C. as representatives for all Garland products, which include both rawhide and plastic loom pickers and textile leathers. Fred O'Neil will continue to represent the factory and will work closely with Hurley and Harrison.

W. F. Hurley

H. W. Harrison

Harry E. Robbins has joined Leesona Corp. as a research engineer.

(Continued on Page 69)



A COMPLETE PACKAGE

of natural or dyed NYLON, DACRON or RAYON filament yarns in all deniers and types to meet your quality standards — in one order, for one charge.

Hoffner
RAYON COMPANY

Belgrade and Ontario Streets, Philadelphia 34, Pa.
REgent 9-5256

SALES REPRESENTATIVES: Shannonhouse & Wetzell, Johnston Building, Charlotte, N.C.; Carl L. Miller and Sons, Utica, N.Y.; R.C. Osborne & Co., Broad St. and Allegheny Ave., Philadelphia 32, Pa.; The Tillinghast-Stiles Co., 327 South LaSalle Street., Chicago 4, Illinois.

PLANTS AT: Philadelphia, Pennsylvania; Quakertown, Pennsylvania; Lansdale, Pennsylvania; Bethlehem, Pennsylvania and Kingston, Pennsylvania.

PIONEERING SYNTHETIC YARNS FOR OVER 35 YEARS

Tyrex

Tyrex Certified Viscose Tire Yarn

Denier	Filament	Twist	Beams	Cones
1100	720	Z	.57	.57
1650	1100	Z	.50	.50

Terms: Net 30 days f.o.b. point of shipment, title to pass to buyer on delivery of goods to carrier. Domestic transportation charges allowed at lowest published rate to all points in continental United States except Alaska.

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

North American Rayon Corporation

Effective December 23, 1959

Super Super High Strength Continuous Yarn Type 710		Cones	Beams
1100/720	1.6Z	.57	.57
1650/720	2.0Z	.50	.50

Tire Cord Fabrics Super Super High Strength Type 710	Rolls
1100/720	.69
1650/720	.59

Terms: Net 30 days, f.o.b. shipping point. Minimum freight allowed to consignee's nearest freight station East of the Mississippi River. To points West of the Mississippi River minimum freight to Memphis, Tenn. allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold f.o.b. delivery point.

Prices are subject to change without notice.

CELLULOSIC STAPLE & TOW

ACETATE

Celanese Corp. of America

Current Prices Effective March 2, 1959

Staple

(Most Deniers Available in Bright or Dull Luster)

Celanese Acetate Staple	
3, 5.5 & 8 Denier (Regular Crimp, Type HC, Type D)	$.36
2, 12 & 17 Denier (Regular Crimp, Type HC, Type D)	.37
35 Denier	.38
50 Denier	.40
Type F—5.5 & 8 Denier	.35
Type F—12 & 17 Denier	.36
Type K—(Available under Celanese License Agreement)	.39
⅝" to ⅞" length (All Deniers)	.03 (Premium)
35 Denier Flat Filament Acetate	.40
Non-Textile Acetate Fibers	.29*

Tow (Celatow)

3, 5.5 & 8 Denier	$.37
2, 12 & 17 Denier	.38
35 Denier	.40
35 Denier Flat Filament Acetate Tow	.42
50 Denier	.42

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. east of Mississippi River. Transportation prepaid to any U.S.A. destination west of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

* No transportation allowed (F.O.B. shipping point.)

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

CROSS-LINKED

Courtaulds (Alabama) Inc.

Effective April 14, 1959

Corval™

Man-made, cross-linked, cellulosic staple, Bright and Dull, 1½, 3 and 5½ denier..... $.40 per lb.

Topel®

Man-made, cross-linked, cellulosic staple, Bright and Dull, 1½, 3 and 5½ denier..... $.37 per lb.

Terms: Net 30 days f.o.b. LeMoyne, Alabama; Minimum transportation allowed to points in U.S.A. east of Mississippi River.

RAYON

American Viscose Corp. Current Prices

Rayon Staple

	Bright and Dull
Regular	$ .33
"Viscose 22"	.33
Extra Strength 1.0 Denier	.36
"Avisco XL" 1.0 Denier	.42
1.5 & 3.0 Deniers	.39
"Avisco Crimped" 1.25 Denier	.36
3.0 & 5.5 Deniers	.34
8.0 & 15.0 Deniers	.35
"Avisco Super L" 8.0, 15.0 & 22.0 Deniers	.36

COLORSPUN STAPLE

1.5 Denier 1 9/16"

Color	Code	Price
Sea Foam	517	47¢
Spun Gold	614	47¢
Cascade	419	42¢
Silver Gray	208	42¢
Bridal Rose	710	42¢
Rosewood	835	47¢
Bisque	803	42¢
Champagne	833	42¢
Sandalwood	802	42¢

3.0 Denier 2"

Mint Green	505	47¢
Pale Pink	708	42¢
Bisque	803	42¢
Sandalwood	802	42¢
Gold	603	47¢
Turquoise	408	42¢
Wine	304	59¢
Gray	208	42¢
Spice Brown	800	47¢

Rayon Tow

Grouped Continuous Filaments (200,000 Total Denier)

1.5, 3.0 & 5.5 Denier Per Filament	.35
9.0 Denier Per Filament	.37

Terms: Net 30 days.

American Enka Corp.

Current Prices Effective 7/1/59

Rayon Staple

Regular Crimp

	Brt.	Dull
1.5 and 3 denier	$ .33	$ .33

High Crimp

6.5 denier	.34	.34
8 denier	.35	....
15 denier	.35	.35

Celanese Corp. of America

Current Prices

Effective May 1, 1959

Rayon Tow

	Bright & Dull
1.5, 3, 5.5 D.P.F. Total denier 200,000	.35
8 D.P.F. Total denier 207,000	.37

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. East of Mississippi River. Transportation prepaid to any U.S.A. destination West of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

Courtaulds (Alabama) Inc.

Effective April 14, 1959

Rayon Staple

	Bright	Dull
1½ and 3 denier	$.33	$.33

Available in 1½", 1-9/16" and 2".

Crimped Rayon Staple

3 and 5½ denier	$.34	$.34
Available in 1-9/16" and 3".		
3 denier		.34
Available in 2".		

Coloray® Solution Dyed Rayon Staple

Color	Price per lb.
Black	39¢
Silver Grey	41¢
Mocha	41¢
Tan	41¢
Medium Brown	41¢
Aqua	42¢
Rose	42¢
Dawn Pink	42¢
Ecru	42¢
Dark Brown	42¢
Slate Grey	45¢
Sulphur	46¢
Nugget	46¢
Light Blue	46¢
Crystal Blue	47¢
Apple Green	47¢
Sage	47¢
Peacock Blue	48¢
Medium Blue	50¢
Indian Yellow	51¢
Dark Blue	51¢
Hunter Green	51¢
Turquoise	52¢
Malachite Green	53¢
Red	58¢

In addition to the above, Black is also available in:

1½ den. 1½" 5½ den. 3"

3 den. 1½" 5½ den. 6"

3 den. 1-9/16"

Terms: Net 30 days f.o.b. LeMoyne, Alabama: Minimum transportation allowed to points in U.S.A. east of Mississippi River.

The Hartford Fibres Co.

Div. Bigelow-Sanford Carpet Co., Inc.

Rayon Staple

Effective November 3, 1958

REGULAR

1.5 denier Bright 1 9/16", 2" ..... .33

VISCALON 66 (Crimped)

8 denier 3" Bright	.35
15 denier 3" Bright	.35
15 denier 3" Dull	.35

"KOLORBON"—Solution Dyed Rayon Staple—3" and 6"

	8 Denier Bright	15 Denier Dull	15 Denier Bright
Cloud Grey	.46	.46	....
Sandalwood	.46	.46	....
Nutria	.46	.46	....
Sea Green	.46	.46	....
Mint Green	.46	.46	....
Champagne	.46	.46	....

Midnight Black	.46	....	.46
Gold	.49	.49	....
Turquoise	.46	.46	....
Melon	.49	.49	....
Capri Blue	.46	.46	....
Charcoal Grey	.46	.46	....
Coco	.47	.47	....
Sable	.48	....	.48
Tangerine	.66	....	.66
Chinese Red	.66	....	.66
Larkspur Blue	.46	.46	....
Royal Blue	.66	....	.66
Lemon Peel	.55	.55	....
Kelly Green	.55	.55	....
Bitter Green	.66	....	.66

Terms: Net 30 days. Prices are quoted f.o.b. shipping point, lowest cost of transportation allowed, or prepaid. To points West of the Mississippi, lowest cost of transportation allowed to the Mississippi River crossing.

North American Rayon Corporation

Current Prices Effective Dec. 23, 1959

Rayon Staple

Super High Tenacity	Bright
No. 1 (Unshrunk)	
1, 1.5 & 3 deniers	.40
No. 2 (Preshrunk)	
1, 1.5 & 3 deniers	.40

Rayon Tow

High Tenacity	
2200 denier, 1.0 and 1.5 D/F	57.5
4400 denier, 1.0 and 1.5 D/F	47.5

Prices are subject to change without notice.

TRIACETATE

Celanese Corp. of America

Current Prices Effective June 7, 1957

(Most Deniers Available in Bright or Dull Luster)

Arnel Staple and Tow

Arnel Triacetate Staple	Bright & Dull
2.5 Individual Denier	$.55
5.0 Individual Denier	.55
Arnel Triacetate Tow	
2.5 Individual Denier 114,000 Total Denier	$.60
5.0 Individual Denier 90,000 Total Denier or 180,000 Total Denier	.60

Packaged on Ball Warps

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. east of Mississippi River. Transportation prepaid to any U.S.A. destination west of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

NON CELLULOSIC YARN

NYLON

Allied Chemical Corporation

Caprolan®

Effective December 23, 1959

Denier	Filament	Turn/In.	Twist	Type**	Package	1st Grade Price/Lb.
200	16	1½	Z	B	Cone*	$1.49
200	16	1½	Z	B	Beams	1.54
200	32	¾	Z	B	Bobbins	1.49
200	32	¾	Z	B	Beams	1.54
520	32	1	Z	B	Bobbins	1.39
520	32	1	Z	B	Beams	1.44
840	136	½	Z	HBT	Al. Tubes	.97
840	136	½	Z	HBT	Beams	.97
1680	272	½	Z	HBT	Al. Tubes	.94
1680	272	½	Z	HBT	Beams	.94
1050	56	½	Z	HB	Al. Tubes	1.15
2100	112	½	Z	HB	Al. Tubes	1.11
4200	224	0	O	HB	Paper Tubes*	1.10
2100	408	0	O	HB	Paper Tubes*	.99
2500	408	0	O	HB	Paper Tubes*	.99
3360	544	0	O	HB	Paper Tubes*	.98
4200	680	0	O	HB	Paper Tubes*	.98
5000	816	0	O	HB	Paper Tubes*	.98
5800	952	0	O	HB	Paper Tubes*	.98
7500	1224	0	O	HB	Paper Tubes*	.97
10000	1632	0	O	HB	Paper Tubes*	.97
15000	2448	0	O	HB	Paper Tubes*	.97

Terms—Net 30 days.

Price subject to change without notice.

Bobbins are invoiced at 45¢ ea.

Aluminum Tubes are invoiced at 40¢ ea.

Beams are invoiced at $220.00.

Cradles for beams are invoiced at $53.00.

B—Bright
H—High Tenacity
T—Heat Stabilized

* Paper Tubes and Cones non-returnable, no charge.

** Type is used to describe luster and tenacity.

All prices quoted F.O.B. Shipping Point.

Minimum transportation charges allowed and prepaid in Continental United States, excluding Alaska.

American Enka Corporation

Enka Nylon Yarn Prices

Effective January 1, 1960

Den./Fil.	Luster*	Twist	Package	Price Per Pound Standard	Sub-Standard
15/1	SD or D	0.5 Z	Tricot Spools	4.00	....
15/1	SD or D	0.5 Z	Pirns-2 lb.	3.89	3.69
20/1	SD	0.5 Z	Pirns-1 lb.	4.95	4.50
20/4-6	D	0.5 Z	Pirns-2 lb.	2.96	2.61
20/4-6	D	0.5 Z	Tricot Spools	3.07	....
30/6	SD	0.5 Z	Pirns-2 lb.	2.36	2.21
40/8	SD	0.5 Z	Pirns-2 lb.	2.01	1.91
40/8	SD	0.5 Z	Tricot Spools	2.11	....
40/8	SD-IC	0.5 Z	Pirns-2 lb.	2.10	2.00
40/10	D	0.5 Z	Pirns-2 lb.	2.06	1.96
40/10	D	0.5 Z	Tricot Spools	2.16	....
50/13	SD	0.5 Z	Pirns-2 lb.	1.91	1.76
50/13	SD-IC	0.5 Z	Pirns-2 lb.	2.00	1.85
70/32	B-SD	0.5 Z	Pirns-2 lb.	1.71	1.66
70/32	SD-IC	0.5 Z	Pirns-2 lb.	1.80	1.75
100/32	SD-IC	0.5 Z	Pirns-2 lb.	1.74	1.69
100/32	SD	0.5 Z	Pirns-2 lb.	1.65	1.60
140/16-32	B-SD	0.5 Z	Pirns-2 lb.	1.60	1.55
140/16-32	B-SD	0.5 Z	Tricot Spools	1.70	....
140/32-64	SD-IC	0.5 Z	Pirns-2 lb.	1.69	1.64
200/16-34	B	0.6 Z	Cones-4 lb.	1.49	1.44
200/16-34	B	0.6 Z	Beams	1.54	....
200/32	SD-IC	0.5 Z	Cones-4 lb.	1.58	1.53
260/16-34	B	0.6 Z	Cones-4 lb.	1.49	1.39
400/68	B	0.6 Z	Cones-4 lb.	1.39	1.29
520/32	B	0.6 Z	Cones-4 lb.	1.39	1.29

* Luster: B—Bright; SD—Semi-Dull; D—Dull; IC—Improved Color.

Pirns invoiced at 25¢ or 45¢ each, depending on type. Deposits refunded upon return of pirns in good condition. Cones are not returnable. Spools, Beams and Racks are deposit carriers and remain the property of American Enka Corporation.

Terms: Net 30 days from date of invoice. Minimum common carrier transportation charges will be prepaid and absorbed to first destination in the continental limits of the United States excluding Alaska and Hawaii. In prepaying transportation charges, seller reserves the right to select carrier used.

All prices subject to change without notice.

The Chemstrand Corp.

Current Prices Effective January 15, 1960

Denier	Filament	Twist	Type	Package	Standard Price/Lb.	Second Price/Lb.
10	1	O	SD	Bobbins	$8.42	$7.81
15	1	O	SD	Bobbins	3.89	3.69
15	1	O	SD	Spools	4.00	....
15	1	O	Dull	Bobbins	3.89	3.69
15	1	O	Dull	Spools	4.00	....
20	7	Z	SD	Bobbins	2.9[illegible]	2.61
30	10	Z	SD	Bobbins	2.36	2.21
30	26	Z	SD	Bobbins	2.49	2.21
40	10	Z	SD	Bobbins	2.01	1.91
40	13	Z	SD	Bobbins	2.01	1.91
40	13	Z	SD	Spools	2.11	....
40	13	Z	SD	Warp Wind	2.01	1.91
40	13	O	SD	Draw Wind	2.01	1.91
40	13	Z	Dull	Bobbins	2.06	1.96
40	13	Z	Dull	Spools	2.16	....
40	13	O	Dull	Draw Wind	2.06	1.96
50	17	Z	SD	Bobbins	1.91	1.76
50	17	O	SD	Draw Wind	1.91	1.76
50	17	Z	Brt.	Bobbins	1.91	1.76
50	17	Z	Brt.	Warp Wind	1.91	1.76
70	20	Z	SD	Bobbins	1.71	1.66
70	34	Z	SD	Bobbins	1.71	1.66
70	34	O	SD	Draw Wind	1.71	1.66
70	34	Z	SD	Warp Wind	1.71	1.66
70	34	Z	Brt.	Bobbins	1.71	1.66
70	34	O	Brt.	Draw Wind	1.71	1.66
70	34	Z	Brt.	Warp Wind	1.71	1.66
70	34	Z	HB	Bobbins	1.76	1.66
70	34	O	HB	Draw Wind	1.76	1.66
90	26	Z	SD	Bobbins	1.76	1.66
100	26	Z	SD	Bobbins	1.65	1.60
100	34	Z	SD	Bobbins	1.65	1.60
100	34	Z	HB	Bobbins	1.70	1.60
140	68	Z	SD	Bobbins	1.60	1.55
140	68	Z	Brt.	Bobbins	1.60	1.55
200	34	Z	Brt.	Bobbins	1.49	1.44
200	34	O	Brt.	Draw Wind	1.49	1.44
200	34	Z	Brt.	Spools	1.54	....
200	68	Z	SD	Bobbins	1.56	1.46
210	34	Z	HB	Bobbins	1.49	1.44
210	34	O	HB	Draw Wind	1.49	1.44
210	34	Z	HB	Warp Wind	1.49	1.44
210	34	Z	HB	Spools	1.54	....
210	34	Z	HB	Beams	1.54	....
210	34	Z	RHB	Bobbins	1.59	1.44
260	17	Z	HB	Bobbins	1.49	1.39
260	17	Z	HB	Beams	1.54	....
420	68	Z	HB	Bobbins	1.39	1.29
420	68	Z	RHB	Bobbins	1.49	1.29
520	34	Z	HB	Bobbins	1.39	1.29
630	102	Z	HB	Tubes	1.39	1.29
630	102	Z	HB	Beams	1.39	....
720	140	Z	RHB	Tubes	1.04	1.01
720	140	Z	RHB	Beams	1.04	1.01
780	51	Z	HB	Tubes	1.39	1.29
840	140	Z	HB	Tubes	.97	.94
840	140	Z	HB	Beams	.97	.94
840	140	Z	HB	Cones	1.01	.94
840	140	Z	RHB	Tubes	.97	.94
840	140	Z	RHB	Beams	.97	.94
840	140	Z	RHB	Cones	1.01	.94
840	140	Z	HB	Paper Tubes	1.01	.94
840	140	Z	RHB	Paper Tubes	1.01	.94
840	140	Z	RHB	Textile Grade —W. W.	1.12	1.01
1040	68	Z	SD	Tubes	1.15	1.05
1040	68	Z	HB	Tubes	1.15	1.05
1050	170	Z	HB	Tubes	.97	.94
1050	170	Z	RHB	Tubes	.97	.94
1680	280	Z	HB	Tubes	.94	.91
1680	280	Z	HB	Beams	.94	.91
1680	280	Z	RHB	Tubes	.94	.91
1680	280	Z	RHB	Beams	.94	.91
1680	280	Z	RHB	Cones	.97	.94

* *Types:* D—Dull; SD—Semi-dull; B—Bright; H—High tenactiy.

Bobbins are invoiced at 25¢ or 45¢, depending on type; tubes are invoiced at 40¢ each; spools invoiced at $95.00, $110.00, and $115.00, depending on type; and beams and crates for beams are invoiced at $220.00 and $25.00 respectively.

Prices subject to changes without notice.

Freight prepaid within Continental United States and Puerto Rico.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Nylon Yarn

Denier & Filament	Turns/Inch & Twist	Type	Package	1st Grade	2nd Grade
7-1	0	200	Bobbin	$9.47	$8.82
10-1	0	200	Bobbin	8.42	7.82
12-1	0	200	Bobbin	7.35	6.85
15-1	0	200	Beam	4.00	....
15-1	0	200	Bobbin	3.89	3.69
15-1	0	680	Beam	4.00	....
15-1	0	680	Bobbin	3.89	3.69
20-1	0	200	Bobbin	4.95	4.50
14-2	0.2Z	200	Bobbin	7.90	7.30
17-2	0.2Z	200	Bobbin	7.05	6.50
20-2	0.2Z	200	Bobbin	5.55	5.05
15-3	0.2Z	200	Bobbin	6.10	5.60
21-3	0.2Z	200	Bobbin	5.48	5.05
20-7	0.5Z	200	Bobbin	2.91	2.61
20-7	0.5Z	200	Beam	3.02	....
20-7	0.5Z	680	Bobbin	2.96	2.61
20-7	0.5Z	680	Beam	3.07	....
20-20	0.7Z	209	Bobbin	6.00	....
28-4	0.2Z	200	Bobbin	2.81	2.61
30-10	0.5Z	200	Bobbin	2.36	2.21
30-10	0.5Z	200	Tricot Bms.	2.46	....
30-10	0.5Z	300	Bobbin	2.51	2.36
30-10	0.5Z	680	Bobbin	2.41	2.21
30-10	0.5Z	680	Tricot Bms.	2.51	....
30-26	0.5Z	200	Bobbin	2.49	2.21
40-1	0	100	Bobbin	4.03	3.75
40-7	0.5Z	200	Bobbin	2.11	1.91
40-10	0.5Z	200	Bobbin	2.01	1.91
40-10	0.5Z	200	Tricot Beams	2.11	....
40-13	0.5Z	200	Bobbin	2.01	1.91
40-13	0.5Z	200	Tricot Bms.	2.11	....
40-13	0.5Z	400	Bobbin	2.13	1.90
40-13	0.5Z	680	Bobbin	2.06	1.96
40-13	0.5Z	680	Tricot Bms.	2.16	....
40-34	0.5Z	200	Bobbin	2.21	1.81
50-10	0.5Z	200	Bobbins	2.11	1.76
50-17	0.5Z	100/200	Bobbin	1.91	1.76
50-17	0	200	Tubes	1.91	1.76
50-17	0.5Z	680	Bobbin	2.01	1.76
60-20	0.5Z	200	Bobbin	1.82	1.65
60-34	0.5Z	300	Bobbin	1.86	1.76
70-17	0.5Z	200	Bobbin	1.71	1.66
70-34	0	100	Tubes	1.71	1.66
70-34	0.5Z	100/200	Bobbin	1.71	1.66
70-34	0	105/205	Paper Tube	1.71	1.66
70-34	0	200	Tubes	1.71	1.66
70-34	0.5Z	280	Bobbin	1.71	1.66
70-34	0.5Z	300	Bobbin	1.76	1.66
70-34	0.5Z	680	Bobbin	1.76	1.66
70-34	0	680	Tubes	1.76	1.66
80-26	0.5Z	200	Bobbin	1.71	1.60
90-26	0.5Z	200	Bobbin	1.76	1.66
100-34	0.5Z	200	Bobbin	1.65	1.60
100-34	0.5Z	300	Bobbin	1.70	1.60
100-34	0	300	Tubes	1.70	1.60
100-34	0.5Z	680	Bobbin	1.70	1.60
100-50	0.5Z	200	Bobbin	1.71	1.60
110-50	0.5Z	200	Bobbin	1.71	1.60
140-68	0.5Z	100	Bobbins	1.60	1.55
140-68	0	200	Tubes	1.60	1.55
140-68	0.5Z	200	Bobbin	1.60	1.55
140-68	0	205	Tube	1.60	1.55
140-68	0.5Z	300	Bobbin	1.65	1.55
200-20	1Z	100	Bobbin	1.49	1.44
200-34	0	100	Tubes	1.49	1.44
200-34	0.7Z	100	Bobbin	1.49	1.44
200-34	0	105	Tube	1.49	1.44
200-34	0.7Z	680	Bobbin	1.54	1.44
200-68	0.7Z	100/200	Bobbin	1.56	1.46
210-34	0	300	Tubes	1.49	1.44
210-34	0.7Z	300	Bobbin	1.49	1.44
210-34	0.7Z	300	Beam	1.54	....
210-34	0	305	Tube	1.49	1.44
210-34	0.7Z	330	Bobbin	1.59	1.44
260-17	1Z	300	Bobbin	1.49	1.39
400-68	0.7Z	100	Bobbin	1.39	1.29
420-68	1Z	300	Bobbin	1.39	1.29
420-68	1Z	300	Beams	1.44	....
520-34	1Z	300	Bobbin	1.39	1.29
630-102	0.7Z	300	Bobbin	1.39	1.29
780-51	1Z	300	Bobbin	1.39	1.29
800-140	0.5Z	100	Bobbin	1.39	1.29
840-140	0.5Z	300/700	Al. Tbs. & Beams	.97	.94
1680-280	0.5Z	300/700	Al. Tbs. & Beams	.94	.91

Color-Sealed Yarn

Denier & Filament	Turns/Inch & Twist	Type	Package	1st Grade	2nd Grade
30-10	0.5Z	140	Bobbin	$2.71	$2.56
40-13	0.5Z	140	Bobbin	2.36	2.16
70-34	0.5Z	140	Bobbin	2.06	2.01
100-34	0.5Z	140	Bobbin	2.00	1.95
100-34	0	140	Tubes	2.00	1.95
200-20	0.7Z	140	Bobbin	1.84	1.79
200-34	0.7Z	140	Bobbin	1.84	1.79
260-17	1Z	140	Bobbin	1.84	1.79

Industrial Yarn				Price/Lb.
840-140	0.5Z	*707	Cone	.97
5040-840	0	*707	Paper Tube	1.01
7560-1260	0	*707	Paper Tube	1.00
10080-1680	0	*707	Paper Tube	1.00
15120-2520	0	*707	Paper Tube	1.00
* Made specifically for cordage use.				
2520-420	0	700	Paper Tube	.99
4200-700	0	700	Paper Tube	.98
5040-840	0	700	Paper Tube	.98
7560-1260	0	700	Paper Tube	.97
10080-1680	0	700	Paper Tube	.97
15120-2520	0	700	Paper Tube	.97

These prices are subject to change without notice. Terms: Net 30 Days.

Types

Type 100—Bright, normal tenacity.
Type 105—Bright, normal tenacity, low shrinkage (5-7%)
Type 140—Bright, color-sealed, black, normal tenacity.
Type 200—Semidull, normal tenacity.
Type 205—Semidull, normal tenacity, low shrinkage (5-7%)
Type 209—Semidull, normal tenacity, improved light durability and dye light fastness.
Type 280—Semidull, normal tenacity, improved light durability and dye light fastness.
Type 300—Bright, high tenacity.
Type 305—Bright, high tenacity, low shrinkage (5-7%)
Type 330—Bright, high tenacity, more heat & light resistant.
Type 400—Semidull, high tenacity.
Type 680—Dull, normal tenacity.
Type 700—Bright, high tenacity.
Type 707—Bright, high tenacity cordage yarn.

Freight Terms—Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

Following are invoiced as a separate item.
Bobbins—25 cents or 45 cents depending on type
Aluminum Tube—40¢ each
Draw Winder Tubes—$.70 or $1.00 depending on type
Tire Cord Beams—$220.00 each
Cradles for Tire Cord Beams—$115.00 each
Tricot Beams—$95.00 each
Cradles for Tricot Beams—$130.00 each
(Beams and Cradles are deposit carriers and remain the property of E. I. du Pont de Nemours & Co., Inc.)

POLYESTER

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Dacron"*

Denier & Filament	Turns/Inch	Luster	Type*	Tubes 1st Gr.
30-14	0	Bright	55	$2.71
30-20	0	Semidull	56	2.71
40-27	0	Semidull	56	2.31
40-27	0	Bright	55	2.31
40-27	0	Dull	57	2.36
70-34	0	Semidull	56	1.91
70-14	0	Bright	55	1.91
70-34	0	Bright	55	1.91
70-34	0	Dull	57	1.96
100-34	0	Semidull	56	1.84
140-28	0	Bright	55	1.79
150-34	0	Semidull	56	1.79
220-50	0	Bright	51	1.76
250-50	0	Bright	55	1.76
1100-250	0	Bright	51	1.50
1100-250	0	Bright	52	1.50

Terms: Net 30 days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the Continental limits of the U. S., excluding Alaska.

Yarn Types

* Type:
Type 51—Bright, high tenacity.
Type 52—Bright, high tenacity.
Type 55—Bright, normal tenacity.
Type 56—Semidull, normal tenacity.
Type 57—Dull, normal tenacity.

Tubes are invoiced as a separate item at $.70 each.

* "DACRON" is DuPont's registered trade-mark for its polyester fiber.

SARAN

The National Plastics Products Company—Fibers Division
Odenton, Maryland

Current Prices:

CONTINUOUS FILAMENT

Type	Twist p. i.	Natural	Colors
1240/10	3	$1.32	$1.37
750/20*	3	1.75	1.80

* For filter fabrics and other industrial purposes only.

F.O.B. Odenton, Maryland.
Terms: Net 30 days.

NON CELLULOSIC STAPLE & TOW ACRYLIC

American Cyanamid Co.
Fibers Division

Effective Date: November 24, 1959

Cyanamid Acrylic Staple

	1st Grade Price (per pound)
2.0 Denier Bright and Semi-Dull	$1.28
3.0 Denier Bright and Semi-Dull	1.18
5.0 Denier Bright and Semi-Dull	1.18
15.0 Denier Bright, Semi-Dull and Dull	.93

Staple Lengths: 1½", 2" 2½", 3", 3½", 4", 4½".

Information provided on request for Deniers, Lengths and Lusters not listed above.

Prices are subject to change without notice.

Terms: Net 30 Days.

F.O.B. Shipping Point—Minimum transportation allowed (Seller's route and method) within the continental limits of the United States excluding Alaska. If Buyer requests and Seller agrees to a route or method involving higher than minimum rate, Buyer shall pay the excess transportation cost.

Note: CRESLAN® is Cyanamid's registered trademark for certain of its acrylic fibers. Use of this trademark is authorized only on properly constructed fabrics, after they have been tested and approved by Cyanamid.

News

(Continued from Page 65)

Fred P. Boehm and **Charles E. Varn** have been appointed assistant directors of sales in Allied Chemical Corp.'s Solvay Process Division. Further appointments in the sales department of this division include **Robert E. Clagett,** Pittsburgh sales branch manager; **G. Richard Barclay,** New Orleans sales branch manager; **Jerome L. Hochenedel,** Houston sales branch manager; and **Richard A. Marshall,** manager, organic chemicals section.

Frank H. Leslie

Frank H. Leslie has joined Burlington Industries' executive staff as vice president and merchandising coordinator. Succeeding him as president of Leslie, Catlin & Co. is **Henry M. Leslie,** formerly a vice president.

George H. Smith has been appointed plant manager of the Whitney, S. C. plant of Indian Head Mills, Inc., succeeding **R. C. Dick, Jr.** who has been promoted to the position of division manager of the company's Greige and Industrial Fabrics Division.

S. M. Fragala has been appointed plant manager of the Beacon plant of Putnam Chemical Corp.

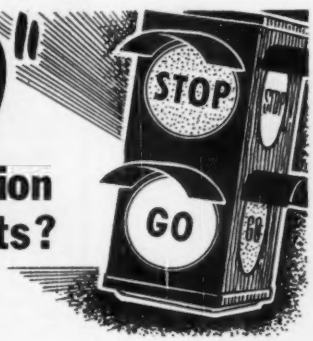
Walter E. Anderson has been appointed sales engineer of Scott Testers, Inc.

A. L. Snyder has been appointed senior marketing advisor at Union Carbide Chemical Co.'s Textile Fibers Department. Further appointments in the department include: **Dr. E. W. Rugely,** senior technical advisor and coordinator; **J. S. McGilly,** manager of Dynel Sales; **J. H. McCormick,** manager of new fiber sales; **H. L. Pero,** manager of customer service; and **T. A. Feild, Jr.,** resident manager of the textile service laboratory in South Charleston.

Louis A. Edelman has been appointed advertising and promotion manager of the Warwick Chemical Division of Sun Chemical Corp.

William H. Miller has been appointed national sales service manager at Wica Chemicals, Inc.

IS "STOP and GO" Production Robbing You of Profits?



"Stop-and-go" production of cloth is costly . . . and unnecessary when the stoppages are due to the fabric guiders. No two fabrics can be handled exactly alike. But you can eliminate a lot of time and expense by installing

MECHO AIR GUIDERS

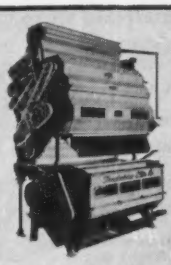
With Mecho on the job, you can quickly adjust for the lightest fabric or #8 duck *while in operation.* . Once set, it will maintain constant cloth alignment and guide within ⅛ inch. It can't spatter or turn a double edge . . . and there are no weights or levers to fuss with. No repair problem, either.

Write today for this helpful FREE Mecho Air Guider Catalog.

THE Guider SPECIALTY COMPANY

423 W. Rock Avenue New Haven 15, Conn.

Southern Representatives: McSpadden and Scantland
P. O. Box 3635, Charlotte 3, N.C.



"WITH LUBRIPLATE LUBRICANTS—NO BEARING LOSS FOR AN ENTIRE SEASON"

so states a well-known manufacturer of Cotton Gin and Oil Mill Machinery

"We have gone to great expense in checking lubricating greases out in the field and find the best to be LUBRIPLATE. Over a season's test we found that out of all the greases tried LUBRIPLATE was the only one that did stand up under all operating conditions throughout a season's run without loss of a single bearing."

REGARDLESS OF THE SIZE AND TYPE OF YOUR MACHINERY, LUBRIPLATE GREASE AND FLUID TYPE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.

LUBRIPLATE is available in grease and fluid densities for every purpose . . . LUBRIPLATE H. D. S. MOTOR OIL meets today's exacting requirements for gasoline and diesel engines.

For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK" . . . a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.

The Chemstrand Corp.

Current Prices

"Acrilan"*

Effective January 1, 1959

	Acrilan	Acrilan 16
2.0 denier Semi-Dull and Bright staple & tow	$1.18	$1.18
2.5 denier Hi-Bulk Bright and Semi-dull staple and tow	1.18	1.18
3.0 denier Bright & Semi-dull staple & tow	1.18	1.18
5.0 denier Bright & Semi-dull staple & tow	1.18	1.18
8.0 denier Bright & Semi-dull staple	1.18	1.18
15.0 denier Bright & Semi-dull staple	.93	.97

Terms: Net 30 days. Freight prepaid within Continental U. S. & Puerto Rico.

* "Acrilan" is Chemstrand's registered trademark for its acrylic fiber.

The Dow Chemical Company

Textile Fibers Department

Current Prices

"Zefran"*

2.0 denier Semidull & Bright—Staple only	$1.28
3.0 denier Semidull & Bright—Staple only	1.28
6.0 denier Semidull & Bright—Staple only	1.18

Terms: Net 30 days.

Transportation Terms: F.O.B. shipping point—Freight prepaid our route within the continental limits of the U. S., excluding Alaska.

* "Zefran is Dow's registered trademark for its acrylic fiber.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Orlon"** Acrylic Staple & Tow

Type 42	Staple Length	Tow Blds.	1st Grade
1.0 Denier Semidull	1¼, 1½, 2, 2½, 3	420M	$1.28
2.0 Denier Semidull & Bright	1¼, 1½, 2, 2½, 3, 4½	470M	1.28
3.0 Denier Semidull & Bright	1¼, 1½, 2, 2½, 3, 4½	470M	1.28
3.0 Denier Semidull Color-sealed Black	1¼, 1½, 2, 2½, 3, 4½	470M	1.63
6.0 Denier Semidull & Bright	1½, 2, 2½, 3, 4½	470M	1.18
6.0 Denier Color-sealed Black	1½, 2, 2½, 3, 4½	470M	1.55
4.5 Denier Semidull	1½, 2, 2½, 3, 4½	470M	1.18
10.0 Denier Semidull & Bright	1½, 2, 2½, 3, 4½	470M	1.18

Tow—Total Denier 470,000

Staple Lengths—1½", 2", 2½", 3", 4½"

High Shrinkage Staple price as Regular Staple

Type 25 $1.18

This product is designed for *Cotton/Rayon System* Spinning and is 2.5 denier, 1½" semidull regular shrinkage staple.

Type 38—4.1 Denier—Semidull—592M Tow $1.18

This product can be dyed, stretched and cut to produce staple which will shrink as much as 38% when subjected to heat.

Type 39 $.94

This product is designed for *woolen system spinning* and is a blend of deniers (average 4.2) with a variable cut length.

Type 39A $.99

This product is designed for *woolen system spinning* and is a blend of predominately fine deniers (average 2.4) with a variable cut length.

Type 39B $.94

This product is designed for *woolen system spinning* and is a blend of predominately heavy deniers (average 6.5) with a variable cut length.

F.O.B. Shipping Point—Freight prepaid our route within the continental limits of the United States, excluding Alaska.

MODACRYLIC

Eastman Chemical Products, Inc.
Tennessee Eastman Co.

Effective November 3, 1958

"Verel"* Staple and Tow

Deniers	Dull and Bright
2 and 3	$1.02 per pound
5, 8, and 12	.92
16 and 20	.88
24 denier	.93

Prices are subject to change without notice.

Terms: Net 30 days. Payment—U. S. A. dollars.

Transportation charges prepaid or allowed to destination in continental United States, except Alaska. Seller reserves right to select route and method of shipment. If Buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.

* "Verel" is a trade-mark of the Eastman Kodak Co.

Union Carbide Chemicals Co.

Div. Union Carbide Corp.

Textile Fibers Dept.

Effective October 1, 1957

Dynel Staple & Tow

Natural Dynel	
3, 6, and 12 Denier, Staple and Tow	1.10 per lb.
24 Denier, Staple and Tow	1.05 per lb.
Dynel Spun with Light Colors:	
Blond, Pewter, or Gray	
3 and 6 Denier, Staple and Tow	1.30 per lb.
Dynel Spun with Dark Colors:	
Black, Charcoal, Brown, Caramel, Green, and Blue	
3 and 6 Denier, Staple and Tow	1.40 per lb.
Dynel Type 63 High Shrinkage (3 Denier only)	Add $.05 per lb. to above prices

Prices are quoted f.o.b. South Charleston, W. Va.

NYLON

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Nylon Staple and Tow

Denier	Type	Staple Lengths	Tow Bundle	1st. Grade Price/Lb.	2nd Grade Staple Only
1.5	200	1½"—4½"	None made	$1.33	$1.18
1.5	201	1½"—4½"	None made	1.35	1.20
2.2	420	1½" only	None made	1.28	1.13
3.0	100/200	1½"—4½"	430M	1.28	1.13
3.0	101/201	1½"—4½"	455M	1.30	1.15
6.0	100	1½"—6½"	330M	1.28	1.13
6.0	101	1½"—6½"	345M	1.30	1.15
15.0	100	1½"—6½"	425M	1.08	....
15.0	101	1½"—6½"	None made	1.10	....
15.0	600	1½"—6½"	425M	1.10	....
15.0	601	1½"—6½"	None made	1.12	....

Staple lengths are restricted to the range shown opposite each denier above. The actual cut lengths within these ranges are as follows:

1½, 1½, 2, 2½, 3, 4½ and 6½

Types

Type 100 Bright, normal tenacity, not heatset.
Type 101 Bright, normal tenacity, heatset.
Type 200 Semidull, normal tenacity, not heatset.
Type 201 Semidull, normal tenacity, heatset
Type 420 Semidull, high tenacity, high modulus, no crimp.
Type 600 Dull normal tenacity, not heatset.
Type 601 Dull normal tenacity, heatset.
These prices are subject to changes without notice.
Terms—Net 30 Days.
Freight Terms—Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

Industrial Rayon Corp.

Effective August 18, 1958

Nylon Staple

1.5 denier	$1.33 per lb.
2, 3 and 6 denier	1.28 per lb.
8 denier	1.15 per lb.
15 and 22 denier	1.08 per lb.

Bright, semi-dull, and full-dull. Required lengths.

NYTRIL

B. F. Goodrich Chemical Co.
A division of The B. F. Goodrich Co.

DARVAN

Effective Nov. 21, 1958

Type	Price Per Pound Net Crimp Set	Crimp Set
3, 4½ and 6 Denier	$1.45	$1.50
1½, 2 Denier	$1.50	$1.55

Pack in 100 Lb. Bales, Net
Staple lengths 1½, 2, 3, 4½
Tow—90,000 Total Denier
Bright, Semi-dull, Dull

(Deniers and lengths of staple not listed above are available upon special request.)

Terms: Net 30 Days.

F.O.B. Shipping Point (Avon Lake, Ohio) Minimum freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if overland, or port of exit of purchaser's choice east of the Mississippi River.

POLYESTER

Beaunit Mills Inc.

Vycron Polyester

Effective: November 20, 1959

				Price Per Lb.
Staple		Denier		
		1.5		$1.36
		3.0		1.36
Staple Cuts are 1½", 2", 3", and 4".				
Tow for Converters		1.5		1.36
(Tow Bundle 200,000 Denier)		3.0		1.36
	1 Den.	1.5 Den.	3 Den.	
Tow Yarn for Direct Spinners		420/280	420/140	1.65
and Coarse Denier Yarns		840/560	840/280	1.60
	1120/1120			1.49
No Twist Tubes		1260/840	1260/420	1.36
		1680/1120	1680/560	1.36
	2240/2240			1.45
		3360/2240	3360/1120	1.36

Terms: Net 30 days, F.O.B. shipping point. Minimum freight allowed to consignee's nearest freight station east of the Mississippi River. To points west of the Mississippi River minimum freight to Memphis, Tenn. allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point. Prices subject to change without further notice.

Improved Leotard Dyeing

A method of reducing time and costs in dyeing leotards and other articles knitted from textured filament nylons has been developed by Geigy Dyestuffs. The method involves the proper selection of dyestuffs and dyeing procedures which simplifies the processing of those items. The company's recommendations have been based on careful laboratory work and wide practical processing.

Three ranges of dyestuffs have been dealt with, relating to normal selection for minimum barre, special selection for minimum barre (light to medium depth), and blacks. The proper staining of Orlon and Dacron is also considered.

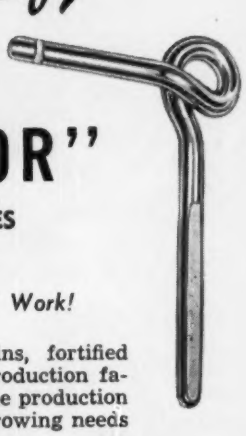
The dyeing procedures are declared to be extremely simple. No involved pretreatments are recommended, nor is the aftertreatment in a fresh bath necessary for improving fastness. Combinations of selected auxiliary products have been worked out by the Geigy laboratory to achieve savings in time and cost. *For further information write the editors.*

Credit Where Credit Is Due

On page 36 of our November, 1959 issue we published digests of papers presented at the annual convention of the American Association of Textile Chemists and Colorists. Due to inadvertence we failed to publish the title and author of a paper, "New Developments in Evaluating Wash and Wear Performance" by James R. Bercaw, Textile Fibers Department, The Du Pont Co. The paper begins with the second last paragraph on page 36, opening with the following words: "The 'built-in' wash-and-wear performance of fabrics made from hydrophobic fibers. . ."

Specify

COLLINS "IRRIDIOR"



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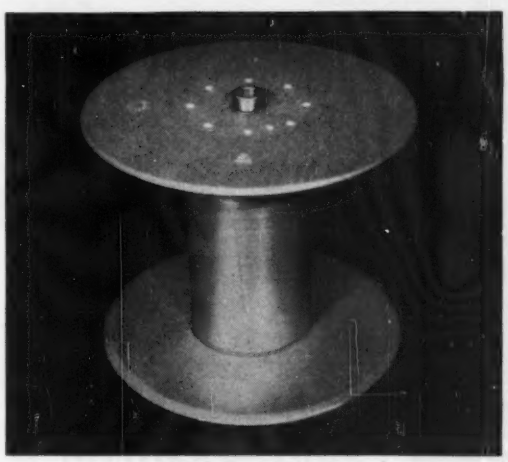

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1680/1120	1680/560	1.45
3360/2240	3360/1120	1.36

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Dacron"* Staple and Tow

Denier	Luster	Type*	Length	Tow Bundle	1st Gr.
1.25	Semidull	54	1¼"-3"	None made	$1.36
1.5	Semidull	64	Tow only	550M	1.41
1.5	Semidull	54	1¼"-3" & Tow	550M	1.36
3.0	Semidull	64	1¼"-4½" & Tow	450M	1.41
3.0	Semidull	54	1¼"-4½" & Tow	450M	1.36
3.0	Semidull	61	1¼"-4½"	None made	1.36
4.5	Semidull	64	1¼"-4½" & Tow	450M	1.36
4.5	Semidull	54	1¼"-4½" & Tow	450M	1.31
6.0	Semidull	64	1¼"-4½" & Tow	450M	1.36
6.0	Semidull	54	1¼"-4½" & Tow	450M	1.31
6.0	Semidull	61	1¼"-4½"	None made	1.31

* Type:
Type 54—Semidull, Normal Tenacity.
Type 61—Industrial Staple having 45% Shrinkage. Not intended for Dyeable Uses.
Type 64—More Pill Resistant Staple, with Greater Dyeing Versatility.

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Eastman Chemical Products, Inc.

Tennessee Eastman Co. Effective September 15, 1958

"Kodel"*

Deniers	Semi-Dull	Black
1½, 3, and 4½	$1.44	$1.79

Terms: Net 30 days. Payment—U. S. A. dollars.

Transportation charges prepaid or allowed to destination in continental United States, except Alaska. Seller reserves right to select route and method of shipment. If Buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.

* "Kodel" is a trade-mark of the Eastman Kodak Company.

VINYON

American Viscose Corp. Effective October 1, 1956

Avisco Vinyon Staple

3.0 denier	½" unopened	$.80 per lb.
3.0 "	1¼" unopened	.80 per lb.
3.0 "	1¼" opened	.90 per lb.
3.0 "	2" opened	.90 per lb.
3.0 "	2" unopened	.80 per lb.
5.5 "	1" opened	.90 per lb.
5.5 "	3½" opened	.90 per lb.
5.5 "	3½" unopened	.80 per lb

Terms: Net 30 days.

SARAN

The National Plastics Products Company—Fibers Division
Odenton, Maryland

Current Prices: Saran Staple

Type	Denier	Natural	Colors
2N—Upholstery	22	$0.70	$0.75
2N—Upholstery	16	.74	.79
3Q—Industrial Fabrics	22	.68	.72
1C—Carpets	22	.68	.72
1M—Mops	22	.68	.72

In any staple length 1½ to 6". Also 45 denier, 7" cut.
F.O.B. Odenton, Maryland.
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NEW YORK 17, NEW YORK

Norwegian Viscose Rayon Staple Fiber

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Sole Agent For United States, Canada, Mexico, Cuba

New Nonwoven Material

C. H. Dexter & Sons, Inc., a 192-year-old industrial paper company, has entered the textile field with Dextex, a new interlining developed initially for use in wash and wear apparel. Earl-Tex Products, New York, has been formed to market Dextex, which was developed with the aid of Du Pont's Textile Fibers Department. Dextex is made with Dacron polyester fiber.

Kodel Uniforms

Kodel, the new polyester fiber of Eastman Chemical Products will be introduced in uniforms for spring, 1960, by four manufacturers: Barco of California, Whittenton Garment Co., Paragon Uniform Corp., and Bob Evans. Each of the styles will be in a wash and wear poplin fabric in a 55/45 blend of Kodel polyester and Topel cross-linked rayon by Travis Fabrics. *For further information write the editors.*

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303 Fifth Ave., N.Y.C.

QUALITY WOOLEN SPINNER WANTED

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Box 839,
Modern Textiles Magazine
303 5th Ave., NYC

TEXTILE ENGINEERS

Graduates of textile school for technical service work in knitted outerwear, hosiery or tricot fields. Should have two or three years experience in the merchandising of above fields with a sound background in knitting and textile technology. Extensive travel primarily on Eastern Seaboard from central Middle Atlantic location. Salary commensurate with experience and education. Practical experience considered in lieu of education.

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MODERN TEXTILES PREVIEW NUMBER

of the

American Textile Machinery Exhibition International

MAY 23-27 IN ATLANTIC CITY, N. J.

ADVERTISING FORMS FOR MAY ISSUE CLOSE APRIL 1, 1960

Calendar of Coming Events

Feb. 3—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
Feb. 8-9—National Cotton Council annual convention. Dallas, Texas.
Feb. 18-19—American Society for Quality Control, Textile Div. annual conference. Clemson House, Clemson, S. C.
Mar. 1-4—ASTM Committee D-13 spring meeting. Sheraton-Atlantic Hotel (formerly Sherton-McAlpin) New York, N. Y.
Mar. 2—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
Mar. 10-11—Fiber Society spring meeting. Roosevelt Hotel, New Orleans, La.
Mar. 24-25—Textile Quality Control Association, spring technical meeting. Dinkler Plaza Hotel, Atlanta, Ga.
Mar. 24-25—Textile Research Institute annual meeting. Hotel Commodore, New York, N. Y.
Mar. 31-Apr. 1—ASME Textile Engineering Conference. N. C. State College, Raleigh, N. C.
Apr. 6—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
Apr. 7-9—American Cotton Manufacturers Institute annual convention. American Hotel, Bal Harbor, Fla.
Apr. 20-22—Alabama Textile Manufacturers Association, annual meeting. Buena Vista Hotel, Biloxi, Miss.
Apr. 21-24—National Association of Hosiery Manufacturers annual meeting. Americana Hotel, Miami Beach, Fla.
Apr. 22—Textile Institute, annual general meeting. Midland Hotel, Manchester, England.
Apr. 26—Institute of Textile Technology, Charlotteville, Va. Meetings of Technical Advisory Committee and Board of Trustees.
Apr. 28-30—Phi Psi National Textile Fraternity 57th annual convention. Hotel Roosevelt, New York, N. Y.
Apr. 29—Underwear Institute annual meeting. Hotel Biltmore, New York, N. Y.
May 4—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
May 11-14—Carolina Yarn Association. The Carolina, Pinehurst, N. C.
May 19-21—Georgia Textile Manufacturers Association, anniversary meeting. Diplomat Hotel and Country Club, Hollywood, Fla.
May 23-27—American Textile Machinery Exhibition. Auditorium, Atlantic City, N. J.
May 25-27—Narrow Fabrics Institute, Inc. spring meeting. Atlantic City Country Club, Northfield, N. J.
May 25-28—Tufted Textile Manufacturers Association annual convention. Fontainebleau Hotel, Miami Beach, Fla.
May 26-28—S. C. Textile Manufacturers' Association annual meeting. The Cloister, Sea Island, Ga.
May 31-Jun. 2—Cotton Research Clinic. Grove Park Inn, Asheville, N. C.
Jun. 1—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
Jun. 23-25—Southern Textile Association annual convention. Grove Park Inn, Asheville, N. C.
Jun. 26-Jul. 1—ASTM annual meeting. Chalfonte-Haddon Hall, Atlantic City, N. J.
Sep. 7-8—Combed Yarn Spinners Association annual meeting. Greenbrier, White Sulphur Springs, W. Va.
Sep. 27-28—Chemical Finishing Conference, sponsored by National Cotton Council. Statler Hotel, Washington, D. C.
Oct. 3-7—Southern Textile Exposition. Textile Hall, Greenville, S. C.
Oct. 6-8—AATCC national convention. Sheraton Hotel, Philadelphia, Pa.

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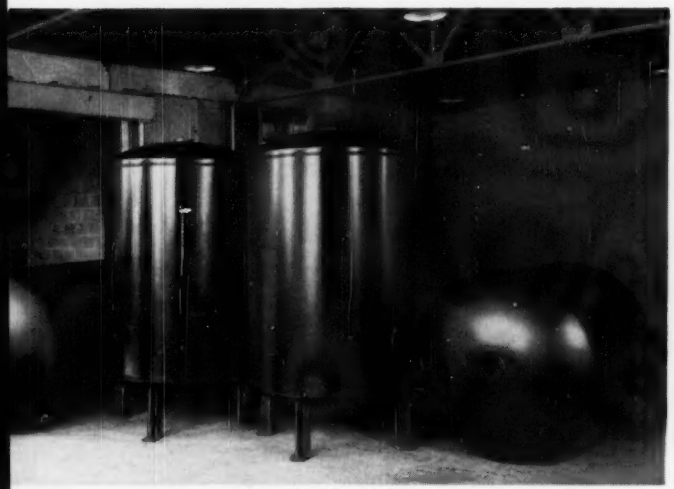

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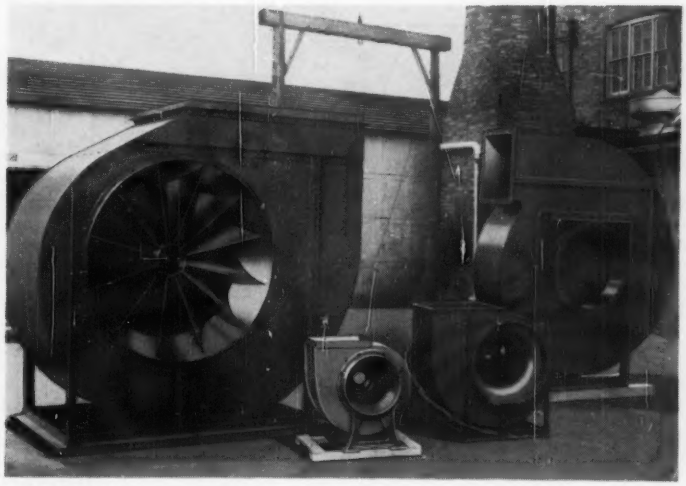

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